# Accounting Information: Users and Uses

chapter

1

## learning objectives

After studying this chapter, you should be able to:

1. Describe the purpose of accounting and explain its role in business and society.
2. Identify the primary users of accounting information.
3. Describe the environment of accounting, including the effects of generally accepted accounting principles, international business, ethical considerations, and technology.
4. Analyze the reasons for studying accounting.

In 1987, **IBM** was the most valuable company in the world, worth an estimated $105.8 billion. By the end of 1992, IBM had an estimated value of $28.8 billion. This decline in value can be traced to a strategic error made by IBM in the early 1980s. Prior to 1981, IBM was the major player in the computer market and was the primary provider of computers for government, universities, and businesses. At this time, believe it or not, virtually no computers were available at an affordable price for individuals. Then, in 1981, IBM introduced its personal computer (IBM PC), and it quickly established the standard by which other PCs would be measured. However, IBM elected to leave the software development for PCs to other companies. Instead of developing its own disk operating system (DOS), IBM elected to use a DOS developed by a small company located in Seattle **MICROSOFT**.[1]

Microsoft was founded in 1975 by Bill Gates and Paul Allen.[2] When they founded Microsoft, Gates and Allen envisioned that computers would eventually find their way into everyday life (contrary to IBM s prediction in the 1950s when one IBM executive forecast the total worldwide demand for computers to be about five). While IBM s performance floundered in the mid- and late-1980s, Microsoft demonstrated an amazing ability to become a major player in practically every aspect of the computer software market from operating systems to the Internet to networks to spreadsheets and word processors.

With Microsoft s many accomplishments comes the question: Just how successful is the company? The answer to that question depends on how you define success. Measured in terms of number of employees, Microsoft has grown from just 32 employees in 1981 when IBM elected to use Microsoft s DOS to 31,575 as of the June 30, 1999, fiscal year. In terms of social impact, Microsoft and its employees donate millions of dollars each year to such charitable causes as Special Olympics, Boys and Girls Clubs, and the United Negro College Fund. Microsoft also supports elementary and high schools throughout the country in their efforts to incorporate technology into the curriculum, and the company has established scholarship programs to encourage minorities and women to pursue careers in computer science and related technical fields. In addition, Bill Gates and his wife Melinda have started a foundation dedicated primarily to health and education. Thus far they have contributed several billion dollars to their foundation.

**f y i**

In fact, many people are of the opinion that Microsoft has succeeded too well. Several of Microsoft s competitors allege that Microsoft is involved in monopolistic practices that stifle competition. As this book goes to press, the government is considering several options relating to Microsoft s business practices including breaking the company into several smaller entities.

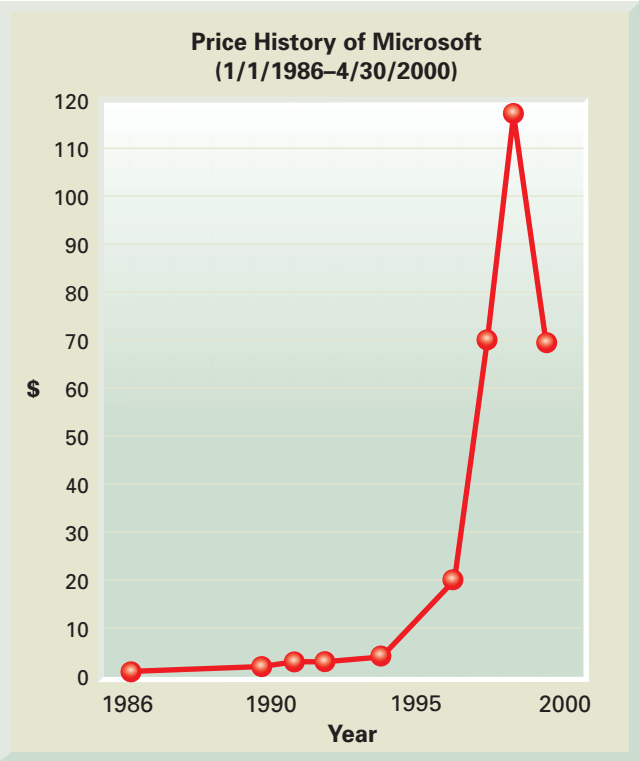
In terms of stock price, Microsoft s per share stock price (adjusted for stock splits) has gone from $0.17 in 1986 to over $70 in April of 2000 (see Exhibit 1-1). On virtually every dimension you can think of, Microsoft has succeeded. But most of these dimensions are a by-product of Microsoft s ability to produce products that are valued by the market. If Microsoft were unable to produce and sell quality products, the company would not be in a position to employ so many people, to give so much money to charities, to dominate (some would say monopolize) its markets, or to experience such an incredible increase in stock price. And this is where accounting enters the picture.



1 The decision to have another company develop the software for its personal computer was not IBM s only strategic error. At the same time, IBM decided to use another company s microprocessors the brains of the computer. As a result, another successful company was born **INTEL**. IBM lost the opportunity to dominate the software market as well as the computer chip market. By May 2000, Microsoft, Intel, and IBM had market values exceeding $364 billion, $398 billion, and $195 billion, respectively.

2 Everybody knows Bill Gates, but few people know about Paul Allen. Allen was Microsoft s head of research and new product development until 1983 when a serious illness caused him to leave the company. He still remains on the company s board of directors and is Microsoft s second largest shareholder. He now spends much of his time investing in technology companies and watching the Seattle Seahawks, a professional football team, and the Portland Trailblazers, a professional basketball team both of which he owns.

**exhibit 1-1** History of Microsoft s Stock Price Per Share




*In this textbook, you will begin your study of accounting. You will learn to speak and understand accounting, the language of business. Without an understanding of accounting, business investments, taxes, and money management will be like a foreign language to you. In brief, an understanding of accounting facilitates the interpretation of financial information, which allows for better economic decisions.*

**caution**

Don t be too concerned with all the new and unfamiliar terms you see in the first chapter of the book. Learning a new language takes time. Be patient. Before too long, you will be speaking the language of business (accounting) quite fluently.

*The major objectives of this text are to provide you with a basic understanding of the language of accounting and with the ability to interpret and use financial information prepared using accounting techniques and procedures. With the knowledge you obtain from this exposure to accounting, you will be able to read the financial statements of companies such as Microsoft, understand the information that is being conveyed, and use accounting information to make good business decisions. Also, through discussion of the business environment in which accounting is used, you will increase your understanding of general business concepts such as corporations, leases, annuities, leverage, derivatives (the financial kind, not the calculus kind), and so forth.*

*You will become convinced that accounting is not bean counting. Time after time you will see that accountants must exercise judgment about how to best summarize and report the results of business transactions. As a result, you will gain a respect for the complexity of accounting and develop a healthy skepticism about the precision of any financial reports you see.*

*Finally, you will see the power of accounting. Financial statements are not just paper reports that get filed away and forgotten. You will see that financial statement numbers, and, indirectly, the accountants who prepare them, determine who receives loans and who doesn t, which companies attract investors and which don t, which managers receive salary bonuses and which don t, and which companies are praised in the financial press and which aren t.*

*So, let s get started.*

## 1 WHAT S THE PURPOSE OF ACCOUNTING?

Describe the purpose of accounting and explain its role in business and society.

Imagine a long distance telephone company with no system in place to document who calls whom and how long they talk. Or a manager of a 300-unit apartment complex who has forgotten to write down which tenants have and have not paid this month s rent. Or an accounting professor who, the day before final grades are due, loses the only copy of the disk containing the spreadsheet of all the homework, quiz, and exam scores. Each of these scenarios illustrates a problem with bookkeeping, the least glamorous aspect of accounting. **Bookkeeping** is the preservation of a systematic, quantitative record of an activity. Bookkeeping systems can be very primitive cutting notches in a stick to tally how many sheep you have or moving beads on a string to track the score in a billiards game. But the importance of routine bookkeeping cannot be overstated; without bookkeeping, business is impossible.

**bookkeeping** The preservation of a systematic, quantitative record of an activity.

To evaluate the importance of bookkeeping records, we ll use a thought experiment. Suppose that sometime during the night, every copy of every novel ever written were to disappear. Could life proceed normally the next day? While the cultural loss would be incalculable, the normal activities of the next day would not be noticeably affected. What if television were suddenly gone when we woke up? While we might wander around wondering what to do with our time, life would go on. But what if we woke up tomorrow morning to find the bookkeeping records of all businesses worldwide destroyed during the night? Businesses that rely on up-to-the-minute customer account information, such as banks, simply could not open their doors. Retailers would have to insist on cash purchases, since no credit records could be verified. Manufacturers would have to do a quick count of existing inventories of raw materials and components to find out whether they could keep their production lines running. Suppliers would have to call all their customers, if they could remember who they were, to renegotiate purchase orders. Attorneys would find themselves in endless arguments about their fees because they would have no record of billable hours. Routine and dry as bookkeeping may seem, the world simply could not function for one day without it.

Rudimentary bookkeeping is ancient, probably predating both language and money. The modern system of double-entry bookkeeping still in use today (described in Chapter 3) was developed in the 1300s 1400s in Italy by the merchants in the trading and banking centers of Florence, Venice, and Genoa. The key development in accounting in the last 500 years has been the use of the bookkeeping data, not just to keep track of things, but to evaluate the performance and health of a business.

This use of bookkeeping data as an evaluation tool may seem obvious to you, but it is a step that is often not taken. Let s consider a bookkeeping system with which most of us are familiar a checking account. Your checking account involves (or should involve) careful recording of the dates and amounts of all checks written and all deposits made, the maintenance of a running account total, and reconciliations with the monthly bank statement. Now, assume that you have a perfect checking account bookkeeping system. Will the system answer the following questions?

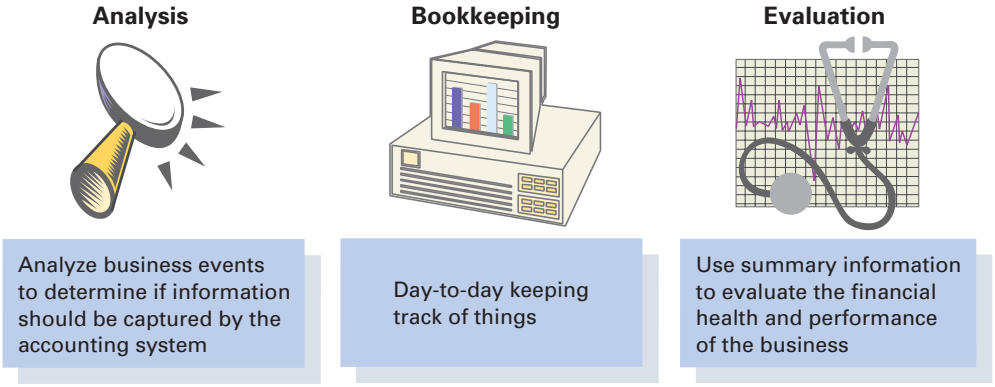
Are you spending more for groceries this year than you did last year?
What proportion of your monthly expenditures are fixed, meaning that you can t change them except through a drastic change in lifestyle?
You plan to study abroad next year; will you be able to save enough between now and then to pay for it?

In order to answer these kinds of evaluation questions, each check must be analyzed to determine the type of expenditure, your checks must then be coded by type of expenditure, the data must be boiled down into summary reports, and past data must be used to forecast future patterns. How many of us use our checking account data like this? Not many. We do the bookkeeping (usually), but we don t structure the information to be used for evaluation.

**accounting system** The procedures and processes used by a business to analyze transactions, handle routine bookkeeping tasks, and structure information so it can be used to evaluate the performance and health of the business.

In summary, an **accounting system** is used by a business to (1) analyze transactions, (2) handle routine bookkeeping tasks, and (3) structure information so it can be used to evaluate the performance and health of the business. Exhibit 1-2 illustrates the three functions of the accounting system.

**exhibit 1-2** Functions of an Accounting System




**accounting** A system for providing quantitative, financial information about economic entities that is useful for making sound economic decisions. Accounting is often called the language of business because it provides the means of recording and communicating business activities and the results of those activities.

**Accounting** is formally defined as a system for providing quantitative information, primarily financial in nature, about economic entities that is intended to be useful in making economic decisions. [3] The key components of this definition are:

*Quantitative.* Accounting relates to numbers. This is a strength because numbers can be easily tabulated and summarized. It is a weakness because some important business events, such as a toxic waste spill and the associated lawsuits and countersuits, cannot be easily described by one or two numbers.

*Financial.* The health and performance of a business are affected by and reflected in many dimensions financial, personal relationships, community and environmental impact, and public image. Accounting focuses on just the financial dimension.

*Useful.* The practice of accounting is supported by a long tradition of theory. U.S. accounting rules have a theoretical conceptual framework. Some people actually make a living as accounting theorists. However, in spite of its theoretical beauty, accounting exists only because it is useful.

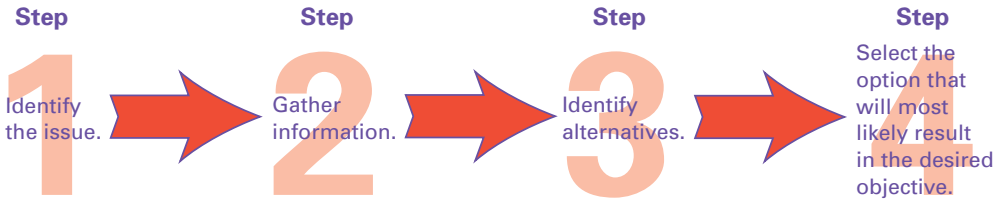
*Decisions.* Although accounting is the structured reporting of what has already occurred, this past information can only be useful if it impacts decisions about the future.

Making good decisions is critical for success in any business enterprise. When an important decision must be made, it is essential to use a rational decision-making process. The process is basically the same no matter how complex the issue. First, the issue or question must be clearly identified. Next, the facts surrounding the situation must be gathered and analyzed. Then, several alternative courses of action should be identified and considered before a decision is finally reached. This decision-making process is summarized in Exhibit 1-3.

One must be careful to make a distinction between a good decision and a good outcome. Often, many factors outside the control of the decision maker affect the outcome of a decision. The decision-making process does not guarantee a certain result; it only ensures that a good decision is made. To illustrate this process, let s consider an example. It s Friday afternoon, the sun is shining, your homework is done, and you have the rest of the afternoon and evening ahead of you. What to do? You check the movie listings in the newspaper to see if there are any new movies you haven t seen, you call several of your friends to see what they are doing, and you review your list of things you always wanted to organize around your apartment but never had the time. With this information, you decide that you could either (1) go to the new Tom Hanks movie with a group of friends or (2) go over to your friend s house and watch TV. (Spending time at home organizing your sock drawer on a Friday night is out of the question.) You

3 Statement of the Accounting Principles Board No. 4, Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises, New York: American Institute of Certified Public Accountants, 1970, par. 40.

**exhibit 1-3** The Decision-Making Process




decide to go to the movies. You get to the movie theater, buy your ticket, your popcorn, and your drink, then select a seat. The lights dim, the movie starts, and the only empty seat left in the theater is right in front of you. It turns out you have the best seat in the house until Shaquille O Neal (7′2″, 300 pounds) comes in and sits in that seat. Good decision, bad outcome.

The four steps of the decision-making process lead to the best decision under the circumstances, but the outcome always has an element of chance. Part of business is learning how to protect yourself against bad outcomes. The first step in achieving a favorable outcome begins with making a good decision.

Accounting plays a vital role in the decision-making process. An accounting system provides information in a form that can be used to make knowledgeable financial decisions. The information supplied by accounting is in the form of quantitative data, primarily financial in nature, and relates to specific economic entities. An economic entity may be an individual, a business enterprise, or a nonprofit organization. A **business**, such as a grocery store or a car dealership, is operated with the objective of making a profit for its owners. The goal of a **nonprofit organization**, such as a city government or a university, is to provide services in an effective and efficient manner. Every entity, regardless of its size or purpose, must have a way to keep track of its economic activities and to measure how well it is accomplishing its goals. Accounting provides the means for tracking activities and measuring results.

**business** An organization operated with the objective of making a profit from the sale of goods or services.

**nonprofit organization** An entity without a profit objective, oriented toward providing services efficiently and effectively.

Without accounting information, many important financial decisions would be made blindly. Investors, for example, would have no way to distinguish between a profitable company and one that is on the verge of failure; bankers could not evaluate the riskiness of potential loans; corporate managers would have no basis for controlling costs, setting prices, or investing the company s resources; and governments would have no basis for taxing income. No list of examples could fully represent the pervasive use of accounting information throughout our economic, social, and political institutions. When accounting information is used effectively as a basis for making economic decisions, limited resources are more likely to be allocated efficiently. From a broad perspective, the result is a healthier economy and a higher standard of living.

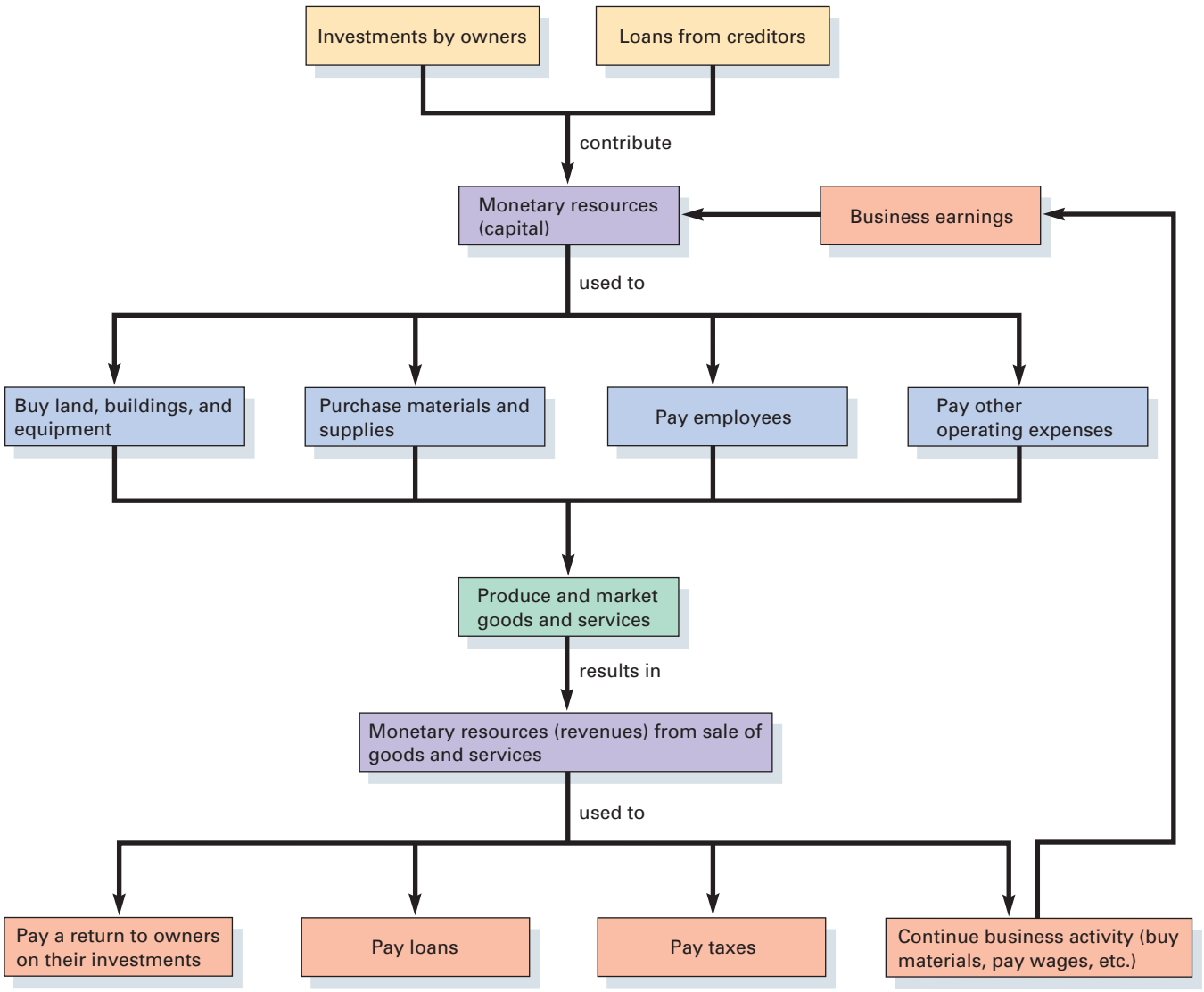
The value of accounting information can also be illustrated on a personal level. Since very few of us will ever make more money than we can spend, we each will be making choices as to what to do with our limited incomes. For example, assume you have a job that results in take-home pay of $2,000 per month. What do you do with the money? If you are making monthly payments on a home and/or an automobile, you previously made choices to use part of your monthly income for these two items. How about a trip around the world, season tickets for your favorite basketball team, or a new home entertainment system? You could spend your money on these items, but that might not be the best use of your income. After all, you haven t eaten yet. Routine expenditures for food, clothing, and utilities must be made. How much money will you need for these and other everyday expenditures? By collecting financial information relating to prior months inflows and outflows of cash, you will be able to approximate how much money you will need for this month. This process called *budgeting* (discussed later) is often used by individuals (and businesses) to ensure that monthly income is used in the best manner possible. While it is true that budgeting is not necessary, budgeting is part of good decision making.

## The Relationship of Accounting to Business

Business is the general term applied to the activities involved in the production and distribution of goods and services. Accounting is used to record and report the financial effects of business activities. Thus, as mentioned earlier, accounting is often called the language of business. It provides the means of recording and communicating the successes and failures of business organizations.

All business enterprises have some activities in common. As shown in Exhibit 1-4, one common activity is the acquisition of monetary resources. These resources, often referred to as capital, come from three sources: (1) investors (owners), (2) creditors (lenders), and (3) the business itself in the form of earnings that have been retained. Once resources are obtained, they are used to buy land, buildings, and equipment; to purchase materials and supplies; to pay employees; and to meet any other operating expenses involved in the production and marketing of goods or services. When the product or service is sold, additional monetary resources (revenues) are generated. These resources can be used to pay loans, to pay taxes, and to buy new materials, equipment, and other items needed to continue the operations of the business. In addition,

**exhibit 1-4** Activities Common to Business Organizations



some of the resources may be distributed to owners as a return on their investment. **MICROSOFT**, for example, uses the earnings from its operations to fund research and development and to purchase other companies. The developed (or purchased) products can then be sold at a profit under the Microsoft name. This produces more funds that can then be used to purchase more companies or develop more products. Microsoft currently does not distribute its resources back to its owners. Owners receive a return on their investment through the growth in value of the stock.

Accountants measure and communicate (report) the results of these activities. In order to measure these results as accurately as possible, accountants follow a fairly standard set of procedures, usually referred to as the **accounting cycle**. The cycle includes several steps, which involve analyzing, recording, classifying, summarizing, and reporting the transactions of a business. These steps are explained in detail in Chapters 3 and 4.

**accounting cycle** The procedure for analyzing, recording, classifying, summarizing, and reporting the transactions of a business.

## to summarize

Accounting is a service activity designed to accumulate, measure, and communicate financial information about economic entities businesses and nonprofit organizations. Its purpose is to provide information used to make informed decisions about how to best use available resources. Accounting is often called the language of business because it provides the means of recording and communicating business activities and the results of those activities.

## 2 WHO USES ACCOUNTING INFORMATION?

Identify the primary users of accounting information.

The accounting system generates output in the form of financial reports. As shown in Exhibit 1-5, there are two major categories of reports: internal and external. Internal reports are used by those who direct the day-to-day operations of a business enterprise. These individuals are collectively referred to as management, and the related area of accounting is called **management accounting**. Management accounting focuses on the information needed for planning, implementing plans, and controlling costs. Managers and executives who work inside a company have access to specialized management accounting information that is not available to outsiders. For example, the management of **McDONALD S CORPORATION** has detailed management accounting data on exactly how much it costs to produce each item on the menu. Further, if **BURGER KING** or **WENDY S** starts a local burger price war in, say, Missouri, McDonald s managers can request daily sales summaries for each store in the area to measure the impact.

**management accounting** The area of accounting concerned with providing internal financial reports to assist management in making decisions.

Other examples of decisions made using management accounting information are whether to produce a product internally or purchase it from an outside supplier, what prices to charge, and which costs seem excessive. Consider those companies that produce computers. Most computers are shipped with an operating system already installed. Approximately 85% of computers have **MICROSOFT** s Windows pre-installed. The computer makers must decide whether to develop their own operating system or pay Microsoft a licensing fee to use Windows. Most computer manufacturers have determined it is cost effective to license from Microsoft. Companies such as **SEARS** and **RADIO SHACK** often use products produced by outside suppliers rather than manufacture the products themselves. The products are then labeled with the Kenmore or Realistic brand names and sold to customers. These are just two examples of decisions that must be made by management given available financial information.

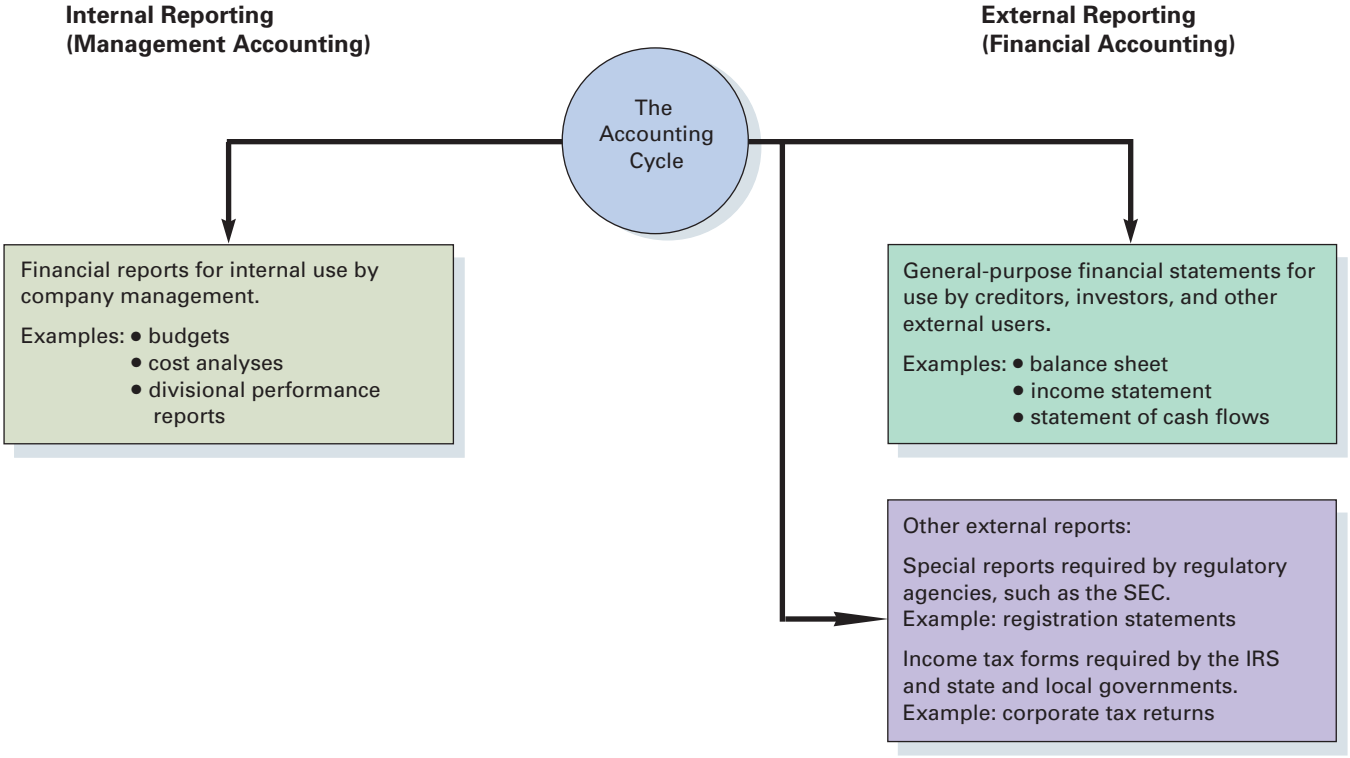
External financial reports, included in the firm s **annual report**, are used by individuals and organizations that have an economic interest in the business but are not part of its management. Information is provided to these external users in the form of general-purpose **financial statements** and special reports required by government agencies. The general-purpose information provided by **financial accounting** is summarized in the three primary financial

**annual report** A document that summarizes the results of operations and financial status of a company for the past year and outlines plans for the future.

**financial statements** Reports such as the balance sheet, income statement, and statement of cash flows, which summarize the financial status and results of operations of a business entity.

**financial accounting** The area of accounting concerned with reporting financial information to interested external parties.

**exhibit 1-5** Output of the Accounting Cycle




statements: balance sheet, income statement, and statement of cash flows (more formally introduced in Chapter 2).

The *balance sheet* reports the resources of a company (the assets), the company s obligations (the liabilities), and the owners equity, which represents the difference between what is owned (assets) and what is owed (liabilities).

The *income statement* reports the amount of net income earned by a company during a period, with annual and quarterly income statements being the most common. Net income is the excess of a company s revenues over its expenses; if the expenses are more than the revenues, then the company has suffered a loss for the period. The income statement represents the accountant s best effort at measuring the economic performance of a company.

The *statement of cash flows* reports the amount of cash collected and paid out by a company in the following three types of activities: operating, investing, and financing. The types of activities in each of these three categories will be explained in Chapter 2. The statement of cash flows is the most objective of the financial statements because, as you will see in subsequent chapters, it involves a minimum of accounting estimates and judgments.

Examples of external users of the information contained in these three financial statements, along with other available information, are described in the following paragraphs.

## Lenders

Lenders (creditors) are interested in one thing being repaid, with interest. If you were to approach a bank for a large loan, the bank would ask you for the following types of information in order to evaluate whether you would be able to repay the loan:

A listing of your assets and liabilities

Payroll stubs, tax returns, and other evidence of your income

Details about any monthly payments (car, rent, credit cards, etc.) you are obligated to make
Copies of recent bank statements to document the flow of cash into and out of your account

In essence, the bank would be asking you for a balance sheet, an income statement, and a statement of cash flows. Similarly, banks use companies financial statements in making decisions about commercial loans. The financial statements are useful because they help the lender predict the future ability of the borrower to repay the loan.

In the case of Microsoft, a review of its balance sheet indicates that the company has no formal lenders. It does, however, report a balance in its accounts payable account. This amount represents amounts owed to vendors from whom Microsoft has purchased on credit. Considering Microsoft s reputation, this lending is very low risk.

## Investors

Investors want information to help them estimate how much cash they can expect to receive in the future if they invest in a business now. Financial statements, coupled with a knowledge of business plans, market forecasts, and the character of management, can aid investors in assessing these future cash flows. Many companies have broad ownership with a few individuals owning a large portion of the company s stock. At Microsoft, Bill Gates owns 787,055,600 shares (15.3% of total shares outstanding); Paul Allen, Microsoft s cofounder, owns 260,723,896 shares (5.1%); and Steve Ballmer, Microsoft s chief executive officer, owns 239,626,854 shares (4.7%).

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One of the concerns with online day trading is that investors make significant investment decisions without ever seeing, or even thinking about, a company s reported financial position.

Obviously, millions of Americans invest in McDonald s, Microsoft, **CISCO SYSTEMS**, and **GENERAL ELECTRIC** without ever seeing the financial statements of these companies. Investors can feel justifiably safe in doing this because large companies are followed by armies of financial analysts who would quickly blow the whistle if they found information suggesting that investors in these companies were at serious risk. But what about investing in a smaller company, one that the financial press doesn t follow, or in a local family business that is seeking outside investors for the first time? In cases such as these, investing without looking at the financial statements is like jumping off the high dive without looking first to see if there is any water in the pool.

## Management

In addition to using management accounting information available only to those within the firm, managers of a company can use the general financial accounting information that is also made available to outsiders. Company goals are often stated in terms of financial accounting numbers, such as a target of sales growth in excess of 5%. Also, reported net income is frequently used in calculating management bonuses. Finally, managers of a company can analyze the general-purpose financial statements (using the techniques introduced in Chapter 2) in order to pinpoint areas of weakness about which more detailed management accounting information can be sought. Microsoft uses internally produced accounting reports to evaluate such things as the profitability of product lines, the success of international operations, and the performance of product and management teams.

## Other Users of Financial Information

There are many other external users of financial information, including suppliers, customers, employees, competitors, government agencies, and the press. These are described below.

**SUPPLIERS AND CUSTOMERS** In some settings, suppliers and customers are interested in the long-run staying power of a company. On the supplier side, if **BOEING** receives an order from an airline for 30 new 747s over the next 10 years, Boeing wants to know whether the airline will be around in the future to take delivery of and pay for the planes. On the customer side, a homeowner who has foundation repair work done wants to know whether the company making the repairs will be around long enough to honor its 50-year guarantee. Financial state-

ments provide information that suppliers and customers can use to assess the long-run prospects of a company. Each version of a software release has a limited life, and part of Microsoft s success has been its ability to provide product upgrades. Microsoft s customers can use financial information to help them ascertain the company s ability to survive and have the resources to fix glitches and provide upgrades as the technology improves.

**EMPLOYEES** Employees are interested in financial accounting information for a variety of reasons. As mentioned earlier, financial statement data are used in determining employee bonuses. In addition, financial accounting information can help an employee evaluate the likelihood that the employer will be able to fulfill its long-run promises, such as pensions and retiree healthcare benefits. Financial statements are also important in contract negotiations between labor and management.

**COMPETITORS** If you were a manager at **PEPSICO**, would you be interested in knowing the relative profitability of **COCA-COLA** s operations in the United States, Brazil, Japan, and France? Of course you would, because that information could help you identify strategic opportunities for marketing pushes where potential profits are high or where your competitor is weak. Microsoft can use the information in financial statements to track its competitors and identify new opportunities to grow and use its market share in operating systems to increase its revenues in other software ventures. For example, Microsoft s recent antitrust troubles relate, in large part, to its competition with **NETSCAPE**, an Internet-browser alternative to Microsoft s Explorer. In 1997 (the last year that Netscape provided publicly available financial information), Netscape lost over $115 million on sales of almost $534 million. During that same period, Microsoft was earning a profit of almost $3.5 billion on sales of almost $12 billion.

**GOVERNMENT AGENCIES** Federal and state government agencies make frequent use of financial accounting information. For example, to make sure that investors have sufficient information to make informed investment decisions, the Securities and Exchange Commission monitors the financial accounting disclosures of companies (both U.S. and foreign) whose stocks trade on U.S. stock exchanges. The International Trade Commission uses financial accounting information to determine whether the importation of Ecuadorian roses or Chinese textiles is harming U.S. companies through unfair trade practices. The Justice Department uses financial statement data to evaluate whether companies (such as Microsoft) are earning excess monopolistic profits. In Microsoft s case, from 1994 through 1999, it reported profits of $0.34 on every dollar of sales. During that same period, General Electric, one of America s most admired companies, generated profits of $0.09 on every dollar of sales.

**THE PRESS** Financial statements are a great place for a reporter to find background information to flesh out a story about a company. For example, a story about Microsoft can be enhanced by using the sales data shown in its annual report. In addition, a surprising accounting announcement, such as a large drop in reported profits, is a trigger for an investigative reporter to write about what is going on in a company. When the Justice Department proposed the breakup of Microsoft, *The Wall Street Journal* reported analysts estimates of the value of the company s various parts based on past revenue figures. For example, one analyst estimated that Microsoft s consumer business would be worth 50 times its revenue.[4]

In summary, who uses financial accounting information? Everyone does, or at least everyone should. External financial reports come within the area of accounting referred to as financial accounting. Most of the data needed to prepare both internal and external reports is provided by the same accounting system. A major difference between management and financial

4 Gregory Zuckerman, Figuring Worth of a Split-Up, Microsoft Leaves Analysts Scattered All Over Map, *The Wall Street Journal*, May 2, 2000, p. C1.

accounting is the types of financial reports prepared. Internal reports are tailored to meet the needs of management and may vary considerably among businesses. General-purpose financial statements and other external reports, however, follow certain standards or guidelines and are thus more uniform among companies. The first thirteen chapters of *Accounting: Concepts and Applications* focus on financial accounting, specifically on the primary financial statements (discussed and illustrated in Chapter 2). The remaining chapters, 14 through 23, focus on management accounting.

## to summarize

Two major categories of reports are generated by the accounting cycle: internal and external. Management accounting focuses on providing reports for internal use by management to assist in making operating decisions and in planning and controlling a company s activities. Financial accounting provides information to meet the needs of external users. General-purpose financial statements are used by investors, creditors, and other external parties who are interested in a company s activities and results.

**3**

Describe the environment of accounting, including the effects of generally accepted accounting principles, international business, ethical considerations, and technology.

## WITHIN WHAT KIND OF ENVIRONMENT DOES ACCOUNTING OPERATE?

Accounting functions in a dynamic environment. Changes in technology as well as economic and political factors can significantly influence accounting practice. Four particularly important factors are the development of generally accepted accounting principles (GAAP), international business, ethical considerations, and technology.

### The Significance and Development of Accounting Standards

Imagine a company that compensates a key employee in the following ways:

Paying a cash salary of $80,000.
Giving a new car with a value of $30,000.
Offering the option to become, a year from now, a 10% owner of the company in exchange for an investment of $200,000.

If the company does well in the coming year, the company will increase in value, the $200,000 price tag for 10% ownership will look like a great deal, and the employee will exercise the option. If the company does poorly, it will decline in value, the $200,000 price will be too high, and the employee will throw the option away and forget the whole thing. Assume the company then sells the ownership option to interested outside investors for $25,000.

The accounting question is how to summarize in one number the company s compensation cost associated with this employee. We would probably all agree to include the $110,000 ($80,000 + $30,000) compensation cost from the cash salary and the new car. What about the option? Both of the following arguments could be put forward:

1. If the employee were to buy the option from the company, just like any other outside investor, the employee would have to pay $25,000. Therefore, giving the option to the employee is just like paying him or her $25,000 cash. The $25,000 value of the option should be added to compensation cost.
2. The option doesn t cost the company a thing. In fact, the option merely increases the probability that the employee will invest $200,000 in the company in the future. The option doesn t add a penny to compensation cost.

business environment essay

**The Evolution of Accounting** It can be argued that accounting as a profession is very young; as a service activity, however, it dates back several thousand years. Long before numerical figures were invented, people designated possessions and debts through natural means. Collections of pebbles, shells, or bones were used to represent exchanges between people. Some maintained records of debt by carving notches in rods or canes. The ancient Peruvians used knotted strings before numerical symbols were invented. Regardless of the rudiments put into practice through the generations, it is obvious that accounting for ownership between parties drove ancient peoples to invent new methods of record keeping and communication. In fact, in his book *The Temper of Our Times*, Eric Hoffer argues that accounting was the driving force behind written language:

> We are often told that the invention of writing in the Middle East about 3000 B.C. marked an epoch in man s career because it revolutionized the transmission of knowledge and ideas. Actually, for many centuries after its invention, writing was used solely to keep track of the intake and outgo of treasuries and warehouses. Writing was invented not to write books but to keep books. (Hoffer, p. 196)

Among the earliest known records are those of the Egyptians and Babylonians (from approximately 3000 B.C.), who recorded on clay tablets such transactions as the payment of wages and taxes. Multiple clay tablets listing valuable items in treasuries and temples have been found at excavation sites in Sumeria and Babylon. It makes sense that accountants of old would only take the time to carve in these clay tablets instead of writing on papyrus if they regarded the information to be of great importance. As a result, we have accurate knowledge of the wealth maintained in the treasuries, but little information relating to the persons who actually owned them.

With the development of a written language came the ability to represent measures of tallied items with a single symbol. Different numerical systems existed throughout the world. As empires gained and lost power, advances in culture and science spread among the different nations. In order to maintain their empires, rulers would dictate the use of more unified communication methods. Under Roman rule, people living in territories in Europe, Africa, the Middle East, and parts of Asia were forced to write and maintain business communications in Latin. During the Roman period (which lasted from approximately 500 B.C. to 500 A.D.), detailed tax records were maintained.

So, which argument is right? Should each company decide for itself whether to include the $25,000 option value as part of compensation cost, or should there be an overall accounting standard followed by all companies? And if there is a standard, who sets it?[5]

There are many situations in business, such as the option compensation case just described, in which reasonable people can disagree about how certain items should be handled for accounting purposes. And, since financial accounting information is designed to be used by people outside a company, it is important that outsiders understand the rules and assumptions used by the company in constructing its financial statements. This would be extremely difficult and costly for outsiders to find out if every company formulated its own set of accounting rules. Accordingly, in most countries in the world there exists a committee or board that establishes the accounting rules for that country.

## The Financial Accounting Standards Board

**Financial Accounting Standards Board (FASB)** The private organization responsible for establishing the standards for financial accounting and reporting in the United States.

In the United States, accounting standards are set by the **Financial Accounting Standards Board (FASB)**. The FASB is based in Norwalk, Connecticut, and its seven full-time members

5 The answer to this surprisingly controversial question of the accounting for option compensation is given in Chapter 8. Just to show how influential accounting can be, this exact issue was debated on the floor of the U.S. Senate.

After the fall of Rome, trade continued to increase around the Mediterranean Sea. Italy found itself positioned between European consumers and Asian and Arabian producers. As trade increased in Italy s port cities, the need to borrow and purchase on credit also increased. In fact, the first bank of importance, Casa di San Georgio, was founded in Genoa, Italy, during the 12th century. During and after the era of the crusades from 1096 to about 1270, money from Italy s European neighbors streamed into and out of Italian cities. Credit transactions rose in volume as traders in Florence, Pisa, and Venice became merchant-bankers. Although accounting did not originate in Italy, its geographic location facilitated the formalization of a system of recording business transactions. In 1494, an Italian Franciscan monk, Luca Pacioli, published a treatise containing a small section titled Particularis de Computis et Scripturis [Details of Accounting and Recording], which contained the essential elements of the double-entry accounting system that is still in use today.

But accounting has not remained static. The Industrial Revolution brought about changes in business, and therefore in accounting. Beginning in England in the mid-1800s, manufacturing processes started to evolve from individualized, handicraft systems to mass-production, factory systems. Technological advances not only provided new machinery but required new types of expenditures as well. Cost accounting systems had to be developed to analyze and control the financial operations of these increasingly complex manufacturing processes.

Governmental laws and requirements also have caused changes in the business environment and have stimulated the growth of accounting services. For example, the Companies Act in England in the 1850s established compulsory independent audits by chartered accountants. In the United States, the 1913 Revenue Act instituted the personal federal income tax, which created a need for income tax accounting. The 1934 Securities Exchange Act established the Securities and Exchange Commission, which monitors the reporting procedures of companies that sell stock publicly.

These and other factors have produced changes in the types of accounting services needed, and in many instances they have affected the accounting procedures themselves. Thus, the profession of accounting has evolved to meet the needs of the people it serves in an ever-changing and increasingly complex business environment.

As this brief history makes clear, accounting is not a static science. It is constantly evolving, changing to meet the needs of users and adapting itself to the economic environment in which it operates.

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**Source:** Eric Hoffer, *The Temper of Our Times* (New York: Harper & Row, 1966).

are selected from a variety of backgrounds professional accounting, business, government, and academia. The FASB receives about one-third of its $20 million annual operating budget through donations from the accounting profession and from businesses. The remaining two-thirds is generated through sales of publications and other services (e.g., a CD-ROM version of all the existing accounting standards). An important thing to note about the FASB is that it is not a government agency; the FASB is a private body established and supported by the joint efforts of the U.S. business community, financial analysts, and practicing accountants. Because the FASB is not a government agency, it has no legal power to enforce the accounting standards it sets. The FASB gets its authority to establish rules from the Securities and Exchange Commission (discussed later).

The FASB maintains its influence as the accounting standard setter for the United States (and the most influential accounting body in the world) by carefully protecting its prestige and reputation for setting good standards. In doing so, the FASB must walk a fine line between constant improvement of accounting practices to provide more full and fair information for external users and practical constraints on financial disclosure to appease businesses that are reluctant to disclose too much information to outsiders. To balance these opposing forces, the FASB seeks consensus by requesting written comments and sponsoring public hearings on all its proposed standards. The end result of this public process is a set of accounting rules that are described as being **generally accepted accounting principles (GAAP)**. Without general acceptance by the

**generally accepted accounting principles (GAAP)** Authoritative guidelines that define accounting practice at a particular time.

business community, FASB standards would merely be theoretical essays by a powerless body, and the FASB would be disbanded. This may sound overly dramatic, but the FASB was created in 1973 to replace the previously existing accounting standards body (the Accounting Principles Board or APB), which had lost credibility with the business community because it was seen as being completely controlled by accountants.

As you study this text, you will be intrigued by the interesting conceptual issues the FASB must wrestle with in setting accounting standards. The FASB has deliberated over the correct way to compute motion picture profits, the appropriate treatment of the cost of dismantling a nuclear power plant, the best approach for reflecting the impact of changes in foreign currency exchange rates, and the proper accounting for complex financial instruments such as commodity futures and interest rate swaps. And since U.S. companies are always suspicious that any change in the accounting rules will make them look worse on paper, almost all FASB decisions are made in the midst of controversy.

STOP & THINK Why is it important for the FASB to remain completely independent?

## Other Organizations

In addition to the FASB, several other organizations affect accounting standards and are important in other ways to the practice of accounting. Some of these organizations are discussed below.

**SECURITIES AND EXCHANGE COMMISSION** In response to the Stock Market Crash of 1929, Congress created the **Securities and Exchange Commission (SEC)** to regulate U.S. stock exchanges. Part of the job of the SEC is to make sure that investors are provided with full and fair information about publicly traded companies. The SEC is not charged with protecting investors from losing money; instead, the SEC seeks to create a fair information environment in which investors can buy and sell stocks without fear that companies are hiding or manipulating financial data.

**Securities and Exchange Commission (SEC)** The government body responsible for regulating the financial reporting practices of most publicly owned corporations in connection with the buying and selling of stocks and bonds.

As part of its regulatory role, the SEC has received from Congress specific legal authority to establish accounting standards for companies soliciting investment funds from the American public. For now, the SEC refrains from exercising this authority and allows the FASB to set U.S. accounting standards. The SEC has generally been content to be publicly supportive of the FASB and to work out any disagreements privately. Remember, however, that the SEC is always looming in the background, legally authorized to take over the setting of U.S. accounting standards should the FASB lose its credibility with the public.

**AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS** The label CPA has two different uses there are individuals who are CPAs and there are CPA firms. A **certified public accountant (CPA)** is someone who has taken a minimum number of college-level accounting classes, has passed the CPA exam administered by the **American Institute of Certified Public Accountants (AICPA)**, and has met other requirements set by his or her state. In essence, the CPA label guarantees that the person has received substantial accounting training. Not all CPAs work as accountants, however. CPAs work in law firms, as business consultants, as corporate managers, for the government, and even some as accounting professors.

**certified public accountant (CPA)** A special designation given to an accountant who has passed a national uniform examination and has met other certifying requirements.

**American Institute of Certified Public Accountants (AICPA)** The national organization of CPAs in the United States.

The second use of the label CPA is in association with a CPA firm. A CPA firm is a company that performs accounting services, just as a law firm performs legal services. Obviously, a CPA firm employs a large number of accountants, not all of whom have received the training necessary to be certified public accountants. CPA firms also employ attorneys, information technology specialists, experts in finance, and other business specialists. CPA firms help companies establish accounting systems, formulate business plans, redesign their operating procedures, and just about anything else you can think of. A good way to think of a CPA firm is as a freelance business-advising firm with a particular strength in accounting issues.

**f y i**

Other tasks accountants perform are planning for acquisitions and mergers, measuring efficiency improvements from new technology, managing quality, and developing accounting software.

**f y i**

Other accounting-related certifications also exist. Examples include the Certified Management Accountant (CMA), Certified Internal Auditor (CIA), and the Certified Fraud Examiner (CFE).

CPA firms are also hired to perform independent audits of the financial statements of a company. The important role of the independent audit in ensuring the reliability of the financial statements is discussed in Chapter 5.

**INTERNAL REVENUE SERVICE** Imagine that you have a contract to design a computerized accounting system for a local business. Your fee is $100,000, which will be paid in full when the job is finished. By the end of the year, you have collected nothing, but you estimate that you have completed 80% of the work on the contract.

If you are asked by a potential business partner how much money you have earned during the past year, what will you say? To say that you made $0, the amount you ve collected on the contract, significantly understates the value of the work you have completed. If the 80% estimate is a fair reflection of the work you ve done, it would seem reasonable for you to report to the potential partner that you ve earned $80,000 ($100,000 × 0.80) during the year. And, as you ll see later in the text, this is exactly what you would report according to financial accounting rules.

**Internal Revenue Service (IRS)** A government agency that prescribes the rules and regulations that govern the collection of tax revenues in the United States.

Now, if you are asked by the **Internal Revenue Service (IRS)** to state your income for the year, how much should you report? You don t have much leeway in the matter, because the IRS has very specific rules about what is considered taxable income. Assume that IRS rules state that you must pay income tax on the $80,000 income from the estimated amount of the contract that you have completed. Two practical problems would arise:

1. You don t have the money to pay the tax. You won t be able to pay the tax until the job is completed and you have collected your entire fee.
2. You could have endless arguments with the IRS about the completion percentage. The IRS could send an agent to dispute your estimate. The whole thing might end up in Tax Court.

This example illustrates that what works for financial accounting purposes does not necessarily work for income tax purposes. Financial accounting reports are designed to provide information about the economic performance and health of a company. Tax rules are designed to tax income when the tax can be paid and to provide concrete rules to minimize inefficient arguing between taxpayers and the IRS. Accordingly, the IRS rules would probably allow you to report $0 income and delay paying income tax until you have actually collected the cash and could thus pay the tax.

**International Accounting Standards Committee (IASC)** The committee formed in 1973 to develop worldwide accounting standards.

The implication of this separation between financial accounting and tax accounting is that companies must maintain two sets of books one set from which the financial statements can be prepared and the other set to comply with income tax regulations. There is nothing shady or underhanded about this. Financial accounting and tax accounting involve different sets of rules because they are designed for different purposes.

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Since international accounting standards often differ from GAAP, foreign companies may be required to adjust their books to be listed on the New York Stock Exchange. For example, when Germany s **DAIMLER-BENZ** (makers of Mercedes Benz) became a NYSE-listed company in 1994, its GAAP-adjusted books showed a loss of $748 million, whereas its German standard books reported earnings of $636 million. Note: Daimler-Benz subsequently merged with CHRYSLER to become DAIMLER-CHRYSLER.

## International Business

One of the significant environmental changes in recent years has been the expansion of business activity on a worldwide basis. As consumers, we are familiar with the wide array of products from other countries, such as electronics from Japan and clothing made in China. On the other hand, many U.S. companies have operating divisions in foreign countries. Other American companies are located totally within the United States but have extensive transactions with foreign companies. The economic environment of today s business is truly based on a global economy. As an example, in 1999 over 65% of **MICROSOFT S** sales were to individuals and companies located outside the United States.

Accounting practices among countries vary widely. Attempts are being made to make those practices more consistent among countries. In an attempt to harmonize conflicting national standards, the **International Accounting Standards Committee (IASC)** was formed in 1973 to develop worldwide accounting standards. This body now represents more than 142 accountancy bodies from 103 countries (including the United States). Like the FASB, the IASC develops proposals, circulates them among interested organizations, receives feedback, and then issues a final pronouncement.

The accounting standards produced by the IASC are referred to as International Accounting Standards (IAS). IAS are envisioned to be a set of standards that can be used by

## business environment essay

**Do You Have What It Takes?** There are many opportunities in the field of accounting. The Bureau of Labor Statistics forecasts that the demand for accounting graduates will increase 10 to 20 percent over the next decade. Accounting graduates use their education to obtain jobs in public accounting, for federal, state and local governments (including the Internal Revenue Service), and in commercial banking. In addition to becoming accountants, many accounting students use their undergraduate accounting education as a stepping-stone to law school or investment banking or to obtain other graduate degrees (like an MBA).

Many accounting students who go on to become accountants pursue the CPA designation. To be a CPA, specific requirements must be met. First, CPAs are re-

STOP & THINK Why is it so difficult to make international accounting standards consistent?

all companies regardless of where they are based. In the extreme, IAS could supplement or even replace standards set by national standard setters such as the FASB. IASC standards are gaining increasing acceptance throughout the world. For example, in April 2000, the IASC Web site (**http://www.iasc.org.uk**) listed more than 958 companies around the world that prepare financial statements according to IAS. Of these companies, 161 are located in Germany and 121 are located in China. Thus far, however, the SEC has not recognized IASC standards and has barred foreign companies from listing their shares on U.S. stock exchanges unless those companies agree to provide financial statements in accordance with U.S. accounting rules. Disclosure requirements in the United States are the strictest in the world, and foreign companies are reluctant to submit to the SEC requirement. This conflict will be interesting to watch in the coming years: Will the SEC maintain a hard line and ultimately force U.S. accounting rules on the rest of the world? Or will the IASC standards gain increasing acceptance and become the worldwide standard? We ll see.

At numerous points throughout this text, we will point out certain international applications of accounting as well as some differences that might exist in accounting rules between the United States and other countries. In addition, each chapter includes a case in the end-of-chapter material dealing with an international accounting issue.

Because of the expansion of international business, consumers are familiar with products from other countries, such as Hong Kong.

quired to have a formal education. For example, although individual state laws vary, as of April 17, 2000, 27 states require students to have completed 150 hours of college education to become CPAs. An additional 19 states have enacted legislation that will require 150 hours at some future date. Currently, only California, Delaware, New Hampshire, and Vermont have not enacted the 150-hour requirement. Next, aspiring CPAs must pass an examination based on the skills obtained from their education. This ensures that accountants are competent to perform independent services for the community. In addition to the examination, field experience requirements must be met to satisfy state licensing laws for CPAs.

If you are interested in someday working in a business environment, a degree in accounting can help you understand business issues, analyze accounting information, and make business decisions.

## Ethics in Accounting

Another environmental factor affecting accounting, and business in general, is the growing concern over ethics. This concern was highlighted in a speech given by the chairman of the SEC, Arthur Levitt, in September 1998. In that speech, entitled The Number s Game, Chairman Levitt identified several major accounting techniques that he believed were being used to undermine the integrity of financial reporting. As you will find, accounting involves significant judgment. Chairman Levitt expressed concern that this accounting judgment was giving way to pressure to meet the numbers. In other words, Wall Street s expectations about a company, rather than the company s actual business performance, were driving the reported accounting numbers.

**f y i**

The AICPA s Code of Professional Conduct can be found on its Web site at **www.aicpa.org**. The Code of Conduct spells out what CPAs are famous for they are required to be independent of their clients, to be good at what they do, and to keep client information confidential.

In his speech, Chairman Levitt mentioned the standards of objectivity, integrity, and judgment in reporting accounting numbers. These standards are an integral part of the public accounting profession s Code of Professional Conduct and form the foundation upon which audited financial statements are compiled and interpreted.

The ethical dilemmas facing businesses and their accountants often revolve around pressures placed on companies by investors, creditors, and potential investors and creditors. As Chairman Levitt mentioned, these pressures can sometimes cause company officials to become involved in accounting hocus-pocus. Because accounting involves judgment, the reported accounting numbers can differ significantly depending on the assumptions made by those preparing the financial statements. As a simple example of how this can occur, consider again the case of Microsoft. When a customer buys a Microsoft product, part of the purchase price relates to promised customer service and future product upgrades. So the question is this: How much of the sales price should Microsoft report as a sale on the date of the sale, and how much relates to future services to be provided? As you can imagine, that is a difficult question to answer, and any answer will involve an estimate.

To quote again from Chairman Levitt s speech, accounting principles allow for flexibility to adapt to changing circumstances. It is this flexibility that creates many of the ethical dilemmas faced by accountants. As businesses come under pressure to report favorable performance, accountants may also come under pressure to flex the rules just a little too far.

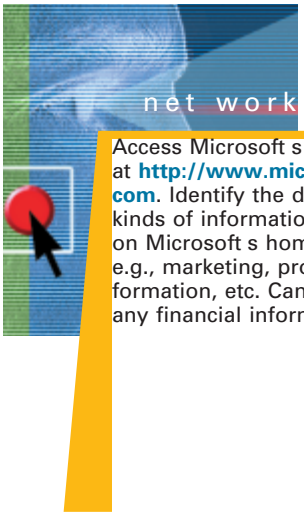
Fortunately, the public accounting profession is guided by a Code of Professional Conduct. Many other accounting organizations also have codes of conduct to provide guidance for their members.

Don t let yourself naively think that ethical dilemmas in business are rare. Such issues arise quite frequently. To help prepare you to enter the business world and to recognize and deal with ethical issues, we have included at least one ethics case at the end of each chapter. Ethics is an important topic that should be considered carefully, with the ultimate goal of improving individual and collective behavior in society.

## Technology

Few developments have changed the way business is conducted as much as computers have. Computer technology allows businesses to do things that 20 years ago were unimaginable. Consider being able to use your desktop computer to track the status of a package shipped from Los Angeles to New York. Companies such as **UPS** and **FEDEX** incorporate this type of technology as an integral part of their business. Financial institutions use computer technology to wire billions of dollars each day to locations around the world.

So how have computers changed the way accounting is done? That question can be addressed on several levels. First, computer technology allows companies to easily gather vast amounts of information about individual transactions. For example, information relating to the customer, the salesperson, the product being sold, and the method of payment can be easily gathered for each transaction using computer technology. Prior to today s technology, the cost of gathering this information was prohibitive.




Access Microsoft s Web site at **http://www.microsoft.com**. Identify the different kinds of information found on Microsoft s home page, e.g., marketing, product information, etc. Can you find any financial information?

Second, computer technology allows large amounts of data to be compiled quickly and accurately, thereby significantly reducing the likelihood of errors. As you will soon discover, a large part of the mechanics of accounting involves moving numbers to and from various accounting records as well as adding and subtracting a lot of figures. Computers have made this process virtually invisible. What once occupied a large part of an accountant s time can now be done in an instant.

Third, in the precomputer world of limited analytical capacity, it was essential for lenders and investors to receive condensed summaries of a company s financial activities. Now, lenders and investors have the ability to receive and process gigabytes of information, so why should the report of Microsoft s financial performance be restricted to three short financial statements? Why can t Microsoft provide access to much more detailed information online? In fact, why can t Microsoft allow investors to directly tap into its own internal accounting database? Information technology has made this type of information acquisition and analysis possible; the question accountants face now is how much information companies should be required to make available to outsiders. Ten years ago, the only way you could get a copy of Microsoft s financial statements was to call or write to receive paper copies in the mail. Now you can download those summary financial statements from Microsoft s Web site. How will you get financial information 10 years from now? No one knows, but the rapid advances in information technology guarantee that it will be different from anything we are familiar with now.

Finally, and most importantly, although technology has changed the way certain aspects of accounting are carried out, on a fundamental level the mechanics of accounting are still the same as they were 500 years ago. People are still required to analyze complex business transactions and input the results of that analysis into the computer. Technology has not replaced judgment.

So if you are asking  Why do I need to understand accounting can t computers just do it?  the answer is a resounding  No!  You need to know what the computer is doing if you are to understand and interpret the information resulting from the accounting process. You need to understand that since judgment was required when the various pieces of information were put into the accounting systems, judgment will be required to appropriately use that information. We have included numerous end-of-chapter opportunities for you to experience how technology helps in the accounting process. These opportunities will illustrate the important role that technology can play in the accounting process as well as emphasize the critical role that the accountant plays as well.

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## to summarize

Accounting functions in a dynamic environment. Generally accepted accounting principles (GAAP) have developed over time. The primary standard-setting body for the private sector is the Financial Accounting Standards Board (FASB). The accounting environment includes business activity that is conducted on an international basis. Consequently, accounting practices often must be modified

to reflect the accounting standards of different countries. Attempts are being made to establish comparable international accounting practices. There is increasing concern in society over ethics. High standards of ethical conduct are important, especially for accountants who assume a special responsibility to the public. CPAs have adopted standards of conduct that contain principles and rules as guidelines for the performance of accounting services. Technology has changed the way accounting information is collected, analyzed, and used. The use of computers in the accounting process has increased significantly, and although they allow more information to be gathered and used, computers have not replaced the accountant nor eliminated the need for qualified decision makers.

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## SO, WHY SHOULD I STUDY ACCOUNTING?

4 Analyze the reasons for studying accounting.

You may still be asking, But why do I need to study accounting? Even if you have no desire to be an accountant, at some point in your life you will need financial information to make certain decisions, such as whether to buy or lease an automobile, how to budget your monthly income, where to invest your savings, or how to finance your (or your child s) college education. You can make each of these decisions without using financial information and then hope everything turns out okay, but that would be bad decision making. As noted in the discussion of Exhibit 1 3, a good decision does not guarantee a good outcome, but a bad decision guarantees one of two things a bad outcome or a lucky outcome. And you cannot count on lucky outcomes time after time. On a personal level, each of us needs to understand how to collect and use accounting information.

Odds are that each of you will have the responsibility of providing some form of income for yourself and your family. Would you prefer to work for a company that is doing well and has a promising future or one that is on the brink of bankruptcy? Of course we all want to work for companies that are doing well. But how would you know? Accounting information will allow you to evaluate your employer s short- and long-term potential.

When you graduate and secure employment, it is almost certain that accounting information will play some role in your job. Whether your responsibilities include sales (where you will need information about product availability and costs), production (where you will need information regarding the costs of materials, labor, and overhead), quality control (where you will need information relating to variances between expected and actual production), or human resources (where you will need information relating to the costs of employees), you will use accounting information. The more you know about where accounting information comes from, how it is accumulated, and how it is best used, the better you will be able to perform your job.

Everyone is affected by accounting information. Saying you don t need to know accounting doesn t change the fact that you are affected by accounting information. Ignoring the value of that information simply puts you at a disadvantage. Those who recognize the value of accounting information and learn how to use it to make better decisions will have a competitive advantage over those who don t. It s as simple as that.

## review of learning objectives

1 **Describe the purpose of accounting and explain its role in business and society.** Accounting is a service activity designed to assist individuals and organizations in deciding how to allocate scarce resources and reach their financial objectives. It is used to accumulate, measure, and communicate economic data about organizations and to assist in the decision-making process.

**2 Identify the primary users of accounting information.** The primary users of accounting information are lenders, investors, management, and other interested individuals and organizations. Management accounting deals primarily with the internal accounting functions of planning, implementing, and control. Financial accounting is concerned with reporting business activities and results to external parties. The objectives of both areas of accounting are measurement and communication of information for decision-making purposes.

**3 Describe the environment of accounting, including the effects of generally accepted accounting principles, international business, ethical considerations, and technology.** Accounting functions in a dynamic environment. The principles of accounting have evolved over time to meet the changing demands of the business environment. They are therefore not absolute. Only if they prove useful do they become generally accepted. Accounting principles provide comparable data for external users and need to be applied with judgment.

Since the 1930s, several organizations have been involved in the development of accounting principles in the United States. The American Institute of Certified Public Accountants (AICPA), the Securities and Exchange Commission (SEC), and the Financial Accounting Standards Board (FASB) are among the most prominent. The FASB is currently the primary standard-setting body for accounting principles in the private sector.

Accounting is practiced in an international environment. Accounting procedures in the United States sometimes must be modified to accommodate foreign operations. Attempts are being made to establish consistent and comparable accounting practices throughout the world, primarily through the efforts of the International Accounting Standards Committee (IASC).

Ethical considerations affect society and are particularly important for accountants, who have a special responsibility to the public. CPAs have adopted standards of conduct to guide them in the performance of their duties.

Technology has changed the way accounting information is accumulated and analyzed. What once occupied a large part of an accountant s time is now done quickly by computers, thereby freeing the accountant to be involved in more productive tasks. But computer technology has not removed the accountant from the decision-making process. Accounting judgment is still essential.

**4 Analyze the reasons for studying accounting.** Knowing how to use accounting information will help individuals make better decisions in their personal life as well as in their employment. Whatever the job, it is likely that accounting information plays a part. Knowing where information comes from, how it is accumulated, and how it is best used will result in better decision making.

## key terms and concepts

accounting 6
accounting cycle 9
accounting system 5
American Institute of Certified Public Accountants (AICPA) 16
annual report 9
bookkeeping 5
business 7
certified public accountant (CPA) 16
financial accounting 9
Financial Accounting Standards Board (FASB) 14
financial statements 9
generally accepted accounting principles (GAAP) 15
Internal Revenue Service (IRS) 17
International Accounting Standards Committee (IASC) 17
management accounting 9
nonprofit organization 7
Securities and Exchange Commission (SEC) 16

## discussion questions

1. What are the three functions of an accounting system?
2. What are the essential elements in decision making, and how does accounting fit into the process?
3. What types of personal decisions have required you to use accounting information?
4. What does the term *business* mean to you?

5. Why is accounting often referred to as the language of business ?
6. In what ways are the needs of internal and external users of accounting information the same? In what ways are they different?
7. What are generally accepted accounting principles (GAAP)? Who currently develops and issues GAAP? What is the purpose of GAAP?
8. Why is it important for financial statements and other external reports to be based on generally accepted accounting principles (GAAP)?
9. What are the respective roles of the Securities and Exchange Commission (SEC) and the Internal Revenue Service (IRS) in the setting of accounting standards?
10. For you as a potential investor, what is the problem with different countries having different accounting standards? For you as the president of a multinational company, what is the problem with different countries having different accounting standards?
11. Ethical considerations affect all society. Why are ethical considerations especially important for accountants?
12. Given significant technological advances, can we expect to see less demand for accountants and accounting-type services?
13. Other than that it is a requirement for your major or that your mom or dad is making you, why should you study accounting?

## discussion cases

### CASE 1-1

### TO LEND OR NOT TO LEND THAT IS THE QUESTION

Sam Love is vice president and chief lending officer of the Meeker First National Bank. Recently, Bill McCarthy, a new farmer, moved to town. Sam has not dealt with Bill previously and knows little about the Mountain Meadow Ranch that Bill operates. Bill would like to borrow $100,000 to purchase some equipment and yearling steers for his ranch. What information does Sam need to help make the lending decision? What type of information should Bill collect and analyze before even requesting the loan?

### CASE 1-2

### INFORMATION NEEDS TO REMAIN COMPETITIVE

In an article in *U.S. News & World Report*, Dan McGraw described how two computer giants, **DELL** and **COMPAQ**, were poised to do battle in the personal computer market. Compaq had 13.2% of the U.S. market share for personal computers to Dell s 8.8%. However, Dell s market share had more than doubled in the last four years while Compaq s share had increased less than 1%. What type of information, accounting or otherwise, do you think the management of Compaq may have wanted and needed as they competed with Dell and the other PC companies?

**Source:** Dan McGraw, Shootout at PC Corral, *U.S. News & World Report*, June 23, 1997, pp. 37 38.

### CASE 1-3

### INTERNATIONAL HAPPENINGS

July 1, 1997, marked a historic date as Hong Kong reverted to political and economic control by mainland China. The Stock Exchange of Hong Kong offers the opportunity to invest in both local Hong Kong companies and in red-chip offerings, which are stocks of companies that are listed in Hong Kong but controlled by mainland China interests. As an international investor, what accounting information might be helpful as you consider investing in the Hong Kong stock market? For which variables in this situation is accounting information unlikely to be very helpful?

# exercises

## EXERCISE 1-1 THE ROLE AND IMPORTANCE OF ACCOUNTING

Assume that you are applying for a part-time job as an accounting clerk in a retail clothing establishment. During the interview, the store manager asks how you expect to contribute to the business. How would you respond?

## EXERCISE 1-2 BOOKKEEPING IS EVERYWHERE

Describe how bookkeeping is applied in each of the following settings:

a. Your college English class.
b. The National Basketball Association.
c. A hospital emergency room.
d. Jury selection for a major murder trial.
e. Four college roommates on a weekend skiing trip.

## EXERCISE 1-3 ACCOUNTING INFORMATION AND DECISION MAKING

You are the owner of Automated Systems, Inc., which sells **APPLE** computers and related data processing equipment. You are currently trying to decide whether to continue selling the Apple computer line or to distribute the Windows-based computers instead. What information do you need to consider in order to determine how successful your business is or will be? What information would help you decide whether to sell the Apple or the Windows-based personal computer line? Use your imagination and general knowledge of business activity.

## EXERCISE 1-4 USERS OF FINANCIAL INFORMATION

Why might each of the following individuals or groups be interested in a firm s financial statements? (a) The current stockholders of the firm; (b) the creditors of the firm; (c) the management of the firm; (d) the prospective stockholders of the firm; (e) the Internal Revenue Service (IRS); (f) the SEC; (g) the firm s major labor union.

## EXERCISE 1-5 STRUCTURING INFORMATION FOR USE IN EVALUATION

You work in a small convenience store. The store is very low-tech; you ring up the sales on an old-style cash register that merely records the amount of the sale. The store owner uses this cash register tape at the end of each day to verify that the correct amount of cash is in the cash register drawer.

In addition to verifying the cash amount, how else could the information on the cash register tape be used to evaluate the store s operation? What additional bookkeeping procedures would be necessary to make these additional uses possible?

## EXERCISE 1-6 INVESTING IN THE STOCK MARKET

Assume your grandparents have just given you $20,000 on the condition that you invest the money in the stock market. As you contemplate making your investment choices, what accounting information do you want to help identify companies that will have high future rates of return?

## EXERCISE 1-7 ALLOCATION OF LIMITED RESOURCES

Assume you are a small business owner trying to increase your company s profits. How can accounting information help you efficiently allocate your limited resources to maximize your business profit?

**EXERCISE 1-8**

## MANAGEMENT VERSUS FINANCIAL ACCOUNTING

This chapter discusses two areas of accounting: management and financial accounting. Contrast management and financial accounting with respect to the following:

Overall purpose
Type of financial reports used (i.e., external, internal, or both)
Users of the information

Also, in what ways are these two fields of accounting similar?

**EXERCISE 1-9**

## THE ROLE OF THE SEC

It is not often that the federal government has allowed the private sector to govern itself, but that is exactly what has happened with the field of accounting. The SEC has delegated the responsibility of rule making to the FASB, a group of seven individuals who are hired full-time to discuss issues, research areas of interest, and determine what GAAP is and will be. What are the advantages of allowing the private sector to determine accounting standards? Identify any advantages that the SEC might gain if it established the rules that govern the practice of accounting.

**EXERCISE 1-10**

## WHY TWO SETS OF BOOKS?

This past year you were married. This coming April you will be faced with preparing your first tax return since mom and dad said you are now on your own. As you review the IRS regulations, you notice several differences from what you learned in your accounting class. It appears that businesses must keep two sets of books: one for the IRS and one in accordance with GAAP. Why aren t GAAP and IRS rules the same?

**EXERCISE 1-11**

## DIFFERENCES IN ACCOUNTING ACROSS BORDERS

In the United States, accounting for inventory is a difficult issue. Inventory is comprised of those items either purchased or manufactured to be resold at a profit. Numerous methods are available to account for inventory for financial reporting purposes. A very commonly used method called LIFO (last-in, first-out) minimizes a company s tax obligation. In the United Kingdom, however, LIFO is not permitted for tax purposes and thus is not used very often for financial reporting. In Turkey, the use of LIFO is severely restricted, and in Russia, LIFO is a foreign term. Only in Germany, where the tax laws have been modified to allow the use of LIFO, is LIFO being adopted. Different accounting methods are available for numerous other issues in accounting. Identify some major problems associated with comparing the financial statements of companies from different countries.

**EXERCISE 1-12**

## ETHICS IN ACCOUNTING

The text has pointed out that ethics is an important topic, especially for CPAs. Derek Bok, former law professor and president of Harvard University, has suggested that colleges and universities have a special opportunity and obligation to train students to be more thoughtful and perceptive about moral and ethical issues. Other individuals have concluded that it is not possible to teach ethics. What do you think? Can ethics be taught? If you agree that colleges and universities can teach ethics, how might the ethical dimensions of accounting be presented to students?

**EXERCISE 1-13**

## CAREER OPPORTUNITIES IN ACCOUNTING

You are scheduled to graduate from college with a degree in accounting, and your mother would like to know what you plan to do with the rest of your life. She assumes that your only option is to be a bookkeeper like Bob Cratchit in the story *A Christmas Carol*. What can you tell Mom regarding the options available to you with your degree in accounting?

**EXERCISE 1-14**

## WHY DO I NEED TO KNOW ACCOUNTING?

One of your college friends recently graduated from school with a major in music (specifically piano). He has told you that he is going to start his own piano instructional business. He

plans to operate the business from home. You ask him how he is going to account for his business, and his reply is, I graduated in music, not accounting. I am going to teach music, not number crunching. I didn t need accounting in college and I don t need it now! Is your friend right? What financial information might he find useful in operating his business?

**EXERCISE 1-15**

### CHALLENGES TO THE ACCOUNTING PROFESSION

As the business world continues to change the way in which business is conducted, accountants are faced with the challenge of accounting for these changes. Who, for example, could have anticipated the risks associated with asbestos? Or the decline of communism? Or the increasingly litigious environment in the United States? Each of these events, and many more, has influenced business which has, in turn, influenced accounting. From your general understanding of accounting and the current business environment, what are some of the challenges you see facing the accounting profession?

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignments
- The Debate
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***Analyzing 1-1 (Microsoft)***

In the Appendix at the back of this text is **MICROSOFT** s complete annual report for the year ended June 30, 1999. Review the annual report and identify its major areas. How many pages of the report are devoted to a narrative of the prior three years performance? How many pages focus on explaining technical accounting and business-related issues and procedures? In your opinion, given your limited knowledge of accounting, what is the most interesting part of the annual report? What is the least interesting?

***Analyzing 1-2 (General Motors)***

Below is a condensed listing of the assets and liabilities of **GENERAL MOTORS** as of December 31, 1999. All amounts are in millions of U.S. dollars.

| *Assets* | | *Liabilities* | |
|---|---|---|---|
| Cash | $ 21,250 | Loans payable | $187,059 |
| Loans receivable | 80,627 | Pensions | 3,339 |
| Inventories | 10,638 | Other retiree benefits | 34,166 |
| Property & equipment | 69,186 | Other liabilities | 28,708 |
| Other assets | 92,572 | | |
| Total assets | $274,273 | Total liabilities | $253,272 |

1. Among its assets, General Motors lists more than $80 billion in loans receivable. This represents loans that General Motors has made and expects to collect in the future. This is exactly the kind of asset reported among the assets of banks. Given what you know about General Motors business, how do you think the company acquired these loans receivable?
2. The difference between the reported amount of General Motors assets and liabilities is $21.001 billion ($274.273 − $253.272). What does this difference represent?

## INTERNATIONAL CASE

***Should the SEC choose the FASB or the IASC?***

The SEC has received from Congress the legal authority to set accounting standards in the United States. Historically, the SEC has allowed the FASB to set those standards. In addition, the SEC has refused to allow foreign companies to seek investment funds in the United States unless they agree to provide U.S. investors with financial statements prepared using FASB rules.

The number of foreign companies seeking to list their shares on U.S. stock exchanges is increasing. Even more would likely sell stock to the American public if the SEC were to agree to accept financial statements prepared according to usually less stringent IASC standards.

Why do you think the SEC has so far insisted on financial statements prepared using FASB rules? Do you agree with its policy? Explain.

## ETHICS CASE

***Disagreement With the Boss***

You recently graduated with your degree in accounting and have accepted an entry-level accounting position with BigTec, Inc. One of your first responsibilities is to review expense reports submitted by various executives. The expense reports include such items as receipts for taking clients to dinner and hotel receipts for business travel. In conducting this review, you note that your boss has submitted for reimbursement several items that are clearly outside the established guidelines of the corporation. In questioning your boss about the items, he told you to process the items and not worry about them. What would you do?

## WRITING ASSIGNMENTS

***The Language of Business***

Accounting is known as the language of business. Prepare a one- to two-page paper explaining why all business students should have some accounting education. Also include a discussion of how accounting applies to at least five different types of businesses, such as a grocery store, a university, or a movie theater.

***Visiting an Accounting Professional***

Select a field of accounting you are interested in. Visit a professional who works in that area and discuss the career opportunities available in that specific accounting field. After the visit, prepare a one- to two-page paper summarizing what you learned from your discussion with the accounting professional.

## THE DEBATE

***Insulate the FASB***

As mentioned in the text, the FASB conducts public hearings concerning any new accounting standards that it is considering. In addition, the FASB invites

interested parties (businesses, trade groups, user groups, accounting professors) to send in written comments on proposed standards. This due process system occasionally exposes the FASB to intense lobbying pressure for and against proposed standards. For example, when the FASB was deliberating over the proper accounting for option compensation (see the example in the chapter), some companies, upset at the FASB s proposed approach, appealed to Congress to pass a bill outlawing the FASB s standard. Can the FASB establish good accounting standards in such a heated, public environment?

Divide your group into two teams.

One team represents the Open Door Policy. Prepare a two-minute oral argument supporting the continuation of the FASB s policy of adopting accounting standards only after public debate.

The other team represents the Insulate the FASB Movement. Prepare a two-minute oral argument outlining why it is impossible for the FASB to design conceptually correct accounting standards while being bombarded with the complaints and threats of self-interested companies and lobbyists.

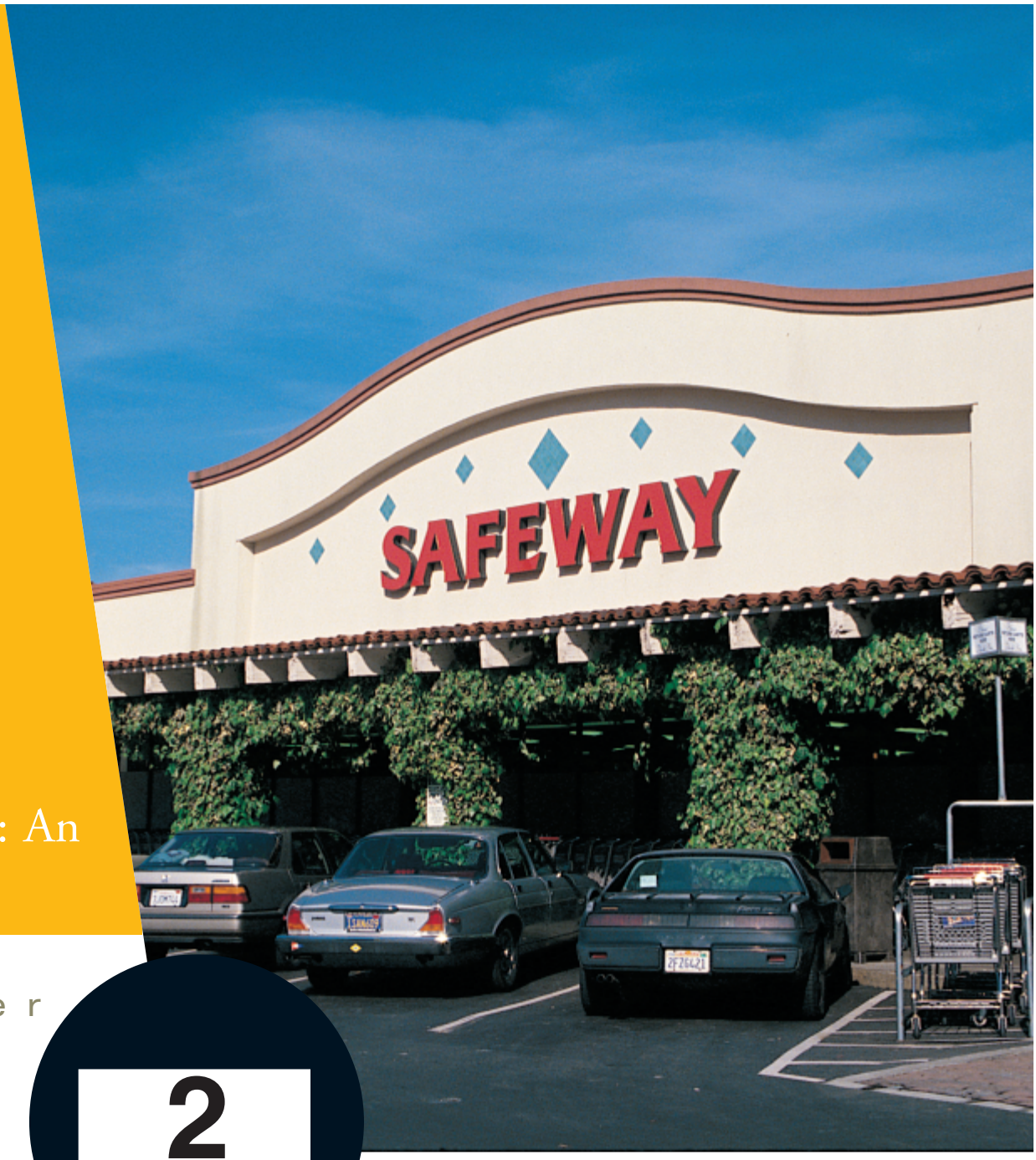
## INTERNET SEARCH

***The Financial Accounting Standards Board***

The FASB s Web address is **http://www.fasb.org**. Sometimes Web addresses change; so if this address is out of commission, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link.

Once you have gained access to the site, answer the following questions.

1. What is the mission of the FASB?
2. How many FASB statements are there? When was the most recent statement issued?
3. When was the first statement issued and what is it about? What other statements are related to Statement No. 1?
4. In what ways are the following three types of FASB pronouncements different: (1) Statements of Financial Accounting Standards (SFAS), (2) Interpretations of SFAS, and (3) Statements of Financial Accounting Concepts?




# Financial Statements: An Overview

chapter

2

## learning objectives

After studying this chapter, you should be able to:

1. Understand the basic elements and formats of the three primary financial statements balance sheet, income statement, and statement of cash flows.
2. Recognize the need for financial statement notes and identify the types of information included in the notes.
3. Describe the purpose of an audit report and the incentives the auditor has to perform a good audit.
4. Use financial ratios to identify a company s strengths and weaknesses and to forecast its future performance.
5. Explain the fundamental concepts and assumptions that underlie financial accounting.

In addition to founding the brokerage firm of **MERRILL LYNCH**, in 1926 Charles Merrill was instrumental in the consolidation of several grocery store chains in the western United States to form one big holding company called **SAFEWAY**. In 1955, control of Safeway passed to Robert Magowan, Merrill s son-in-law. Under Magowan s leadership, Safeway expanded to become the second largest supermarket chain in the United States. Shortly after Magowan retired in 1971, Safeway passed **THE GREAT ATLANTIC AND PACIFIC TEA COMPANY (A&P)** to become the largest supermarket chain.

During the 1970s, Safeway became too cautious and conservative (in the view of many). It was whispered that Safeway would become the A&P of the West a fallen giant no longer willing to make the bold moves that had created its success in the first place. In 1980, Robert Magowan s 37-year-old son, Peter (who had started out in Safeway as a teenager bagging groceries), became chairman of the board of directors. As he assumed leadership of Safeway, Magowan faced a host of problems: an overall decrease in the size of the grocery market due to an increased tendency by Americans to eat at fast-food restaurants; union contracts that resulted in higher labor costs for Safeway than many of its competitors; high corporate overhead; and stores that were too small and too close together. As a result of these problems, between 1976 and 1980 Safeway lost market share in 9 of the 14 major markets in which it operated. As one executive put it, [Losing market share] in the food business [is] a hell of an indicator you re not giving the customer what he wants. By 1981, Safeway s financial performance had hit disappointing lows.

Under Peter Magowan s leadership, Safeway eliminated 2,000 office and warehouse jobs and embarked upon an impressive program of new construction and remodeling. During much of the early 1980s, Safeway spent more on capital expenditures than any other U.S. company, averaging nearly $600 million per year. In November 1986, Safeway was acquired by **KOHLBERG, KRAVIS, ROBERTS & CO. (KKR)** for $5.3 billion in what was then the second-largest leveraged buyout (LBO) of all time. In an LBO, a group of private investors, sometimes joined by company managers, supply only a small amount of the money needed to buy an entire corporation. The bulk of the purchase price is provided by banks and other lenders, with the assets of the acquired company serving as collateral for the loans. As an indication of how leveraged the Safeway buyout was, the KKR investors put only $130 million of their own money into the $5.3 billion deal.

So, how is Safeway doing today? In the 1999 Fortune 500 survey, Safeway, with 1999 sales of $28.9 billion, ranks as the third-largest food and drug chain in the United States, behind **KROGER** ($45.3 billion in sales) and **ALBERTSON S** ($37.5 billion in sales).[1] In fact, Safeway s 1999 sales increased 18% to reach this peak. Sales volume isn t the only financial measure that can be used to evaluate a company, however. For example, Safeway s net income in 1999 was $971 million, higher than the net income for both Kroger and Albertson s. Also, Safeway s cash income ( cash from operations ) was $1,488.4 million. Further, Safeway earned 23.8 cents of profit for every dollar invested by its stockholders a decent one-year return on investment (a dollar invested in a certificate of deposit during the same period would have earned only about 4 cents).

setting the stage

*To adequately answer the question of how Safeway is doing today, one must have a working knowledge of financial statements. In this chapter, you will learn that the financial statements are summary reports that show how a business is doing and where its successes and failures lie. The financial statements covered in this chapter are the same as those used every day by millions of business owners, investors, and creditors to evaluate how well or poorly organizations are doing.*

*You will also be introduced to the use of financial ratios, which are the tools of financial statement analysis. You will learn how to compute and interpret ratios such as return on equity, asset*

1 In 1999, Albertson s merged with **AMERICAN STORES** to form what was, at the time, the largest supermarket chain in the United States. Coincidentally, American Stores traces its roots back to the Skaggs family, whose stores also formed the backbone of the original Safeway chain organized by Charles Merrill in 1926.

*turnover, and price-earnings (PE) ratio. Hopefully, you will come away from this chapter convinced that the purpose of accounting is not to fill out dull reports that are then filed away in dusty cabinets, but rather to prepare summary financial performance measures to be used as the basis for thousands of economic decisions every day.*

## THE FINANCIAL STATEMENTS

1 Understand the basic elements and formats of the three primary financial statements balance sheet, income statement, and statement of cash flows.

The job of a mortgage loan officer is to evaluate each mortgage applicant to determine the likelihood that he or she will repay the mortgage loan. A key piece of evidence in each applicant s file is the financial information included as part of the loan application. A loan officer can use this information to evaluate whether an applicant will generate enough income to make the monthly mortgage payments and continue to make the required payments on other obligations. In fact, it is difficult to imagine how a mortgage loan officer could make an informed decision without this financial information.

Gaining access to an applicant s financial information clearly helps the mortgage lender make a better loan decision, but the applicant also benefits from making these financial disclosures. If no financial disclosures were provided, lenders would be forced to make loan decisions in the absence of reliable financial information about applicants. With greater uncertainty about applicants ability to repay loans, a lender s risk would increase, causing the lender to raise the interest rate charged on loans. Thus, disclosure of financial information allows a lender to make better lending decisions and also allows an applicant to reduce the lender s uncertainty, leading to a lower interest rate on the loan.

The financial statements prepared by companies yield the same benefits as do the financial disclosures provided by mortgage applicants. Financial statement information provides potential lenders and investors with a reliable basis for evaluating the past performance and future prospects of a company. Because financial statements are used by so many different groups (investors, creditors, managers, etc.), they are sometimes called *general-purpose financial statements*. The three **primary financial statements** are the balance sheet, the income statement, and the statement of cash flows. These statements provide answers to the following questions:

**primary financial statements** The balance sheet, income statement, and statement of cash flows, used by external groups to assess a company s economic standing.

1. What is the company s current financial status?
2. What were the company s operating results for the period?
3. How did the company obtain and use cash during the period?

The **balance sheet** (or **statement of financial position**) reports the resources of a company (assets), the company s obligations (liabilities), and the difference between what is owned (assets) and what is owed (liabilities), called owners equity. The **income statement** (or **statement of earnings**) reports the amount of net income earned by a company during a period, with annual and quarterly income statements being the most common. (Net income is discussed later in the chapter.) The income statement represents the accountant s best effort at measuring the economic performance of a company. The **statement of cash flows** reports the amount of cash collected and paid out by a company in the following three types of activities: operating, investing, and financing. As an illustration, the 1999 financial statements from **MICROSOFT** are reproduced in Appendix A at the end of the book. The Microsoft statements are referred to throughout this chapter and the rest of the book.

**balance sheet (statement of financial position)** The financial statement that reports a company s assets, liabilities, and owners equity at a particular date.

**income statement (statement of earnings)** The financial statement that reports the amount of net income earned by a company during a period.

**statement of cash flows** The financial statement that reports the amount of cash collected and paid out by a company during a period of time.

### The Balance Sheet

In the movie *The Princess Bride*, the hero, Wesley, was mostly dead all day until being revived by a miracle pill. Wesley was immediately challenged to come up with a plan to stop the imminent marriage of his true love, Buttercup, to the evil Prince Humperdinck. In formulating his plan, Wesley s first question to his conspirators was What are our liabilities? followed by What are our assets? In essence, the recently revived hero was saying, Let me see a balance sheet. Similarly, the first questions asked about any business by potential investors and credi-

**assets** Economic resources that are owned or controlled by a company.

**liabilities** Obligations to pay cash, transfer other assets, or provide services to someone else.

tors are What are the resources of the business? and What are its existing obligations? The balance sheet answers these questions.

The three categories of the balance sheet assets, liabilities, and owners equity are each explained below.

**ASSETS** **Assets** are economic resources that are owned or controlled[2] by a company. Assets for a typical company include cash, accounts receivable (amounts owed to the company by customers), inventory (goods held for sale), land, buildings, equipment, and even intangible items, such as copyrights and patents. To be summarized and aggregated on a balance sheet, each asset must be assigned a dollar amount. A balance sheet wouldn t be very useful with the following asset listing: one bank account, two warehouses full of goods, three trucks, and four customers who owe us money. As emphasized throughout this text, the monetary measurement and valuation of assets is an area in which accountants must exercise considerable professional judgment.

**f y i**

The insurmountable difficulties in valuing some assets can cause important economic assets to be excluded from a company s balance sheet. For example, how does one put a monetary value on the worldwide reputation of Coca-Cola or on the genius and leadership of Bill Gates? These assets, though incredibly valuable, are not listed in the balance sheets of **THE COCA-COLA COMPANY** or of Microsoft.

**LIABILITIES** **Liabilities** are obligations to pay cash, transfer other assets, or provide services to someone else. Your personal liabilities might include unpaid phone bills, the remaining balance on an automobile loan, or an obligation to complete work for which you have already been paid. Some common liabilities of a company are accounts payable (amounts owed by the company to suppliers), notes payable (amounts owed to banks or others), and mortgages payable (amounts owed for purchased property, such as land or buildings). Like assets, liabilities must be measured in monetary amounts. And, as with assets, quantifying the amount of a liability can require extensive judgment. As one example, consider the difficulties faced by a company to quantify its obligation to clean up a particular toxic waste site when the cleanup will take years to complete; the exact extent of the environmental damage at the site is still in dispute; and legal responsibility for the toxic mess is still debated in the courts. Properly valuing a company s liabilities is one of the biggest (if not *the* biggest) challenges that an accountant faces.

**owners equity** The ownership interest in the net assets of an entity; equals total assets minus total liabilities.

**net assets** The owners equity of a business; equal to total assets minus total liabilities.

**OWNERS EQUITY** The remaining claim against the assets of a business, after the liabilities have been deducted, is **owners equity**. Thus, owners equity is a residual amount; it represents the **net assets** (total assets minus total liabilities) available after all obligations have been satisfied. Obviously, if there are no liabilities (an unlikely situation, except at the start of a business), then the total assets are exactly equal to the owners claims against those assets the owners equity.

**f y i**

Although the emphasis in this book is on corporations, most of the same principles also apply to proprietorships and partnerships. Differences in accounting for proprietorships and partnerships are explained in detail in the expanded material in Chapter 11.

In order to get a business started, investors transfer resources, usually cash, to the business in return for part ownership. Ownership of a company can be restricted to one person (a sole proprietorship), to a small group (a partnership), or to a diffuse group of owners who often don t even know one another (a corporation). When owners initially invest money in a corporation, they receive evidence of their ownership in the form of shares of stock, represented by stock certificates. These shares of stock may then be privately traded among existing owners of the corporation, privately sold to new owners, or traded publicly on an organized stock exchange such as the New York Stock Exchange (NYSE) (where **SAFEWAY** s shares are traded) or the NASDAQ exchange (where Microsoft s shares are traded). The owners of a corporation are called **stockholders** or **shareholders**, and the owners equity section of a corporate balance sheet is sometimes referred to as **stockholders equity**.

**stockholders (shareholders)** The owners of a corporation.

**stockholders equity** The owners equity section of a corporate balance sheet.

Owners equity is increased when owners make additional investments in a business or when the business generates profits that are retained in the business. Since business profits belong to the owners, retaining the profits in the business is equivalent to giving the profits to the owners and then having them immediately reinvest that amount back into the business.

2 An example of an asset that a company technically does not own, but does economically control, is a building that the company uses under a long-term, noncancelable lease agreement.

## business environment essay

**Should I Incorporate?** Pick up just about any business newspaper or magazine, look in the classified section, and you are sure to see advertisements offering to help you set up a corporation. Incorporate in USA by Fax or Phone!!! Incorporate: All 50 States and Offshore. Typical Incorporating Fees: Delaware, $199; Wyoming, $285; the Bahamas, $500; Isle of Man, £250. With all this eagerness to incorporate, there must be some advantages. To understand these advantages, as well as the disadvantages, it is necessary to review the three major types of business entities: proprietorships, partnerships, and corporations.

1. *Proprietorship.* A proprietorship is a business owned by one person. Almost always, the owner of the business also manages the operation. For example, many owners of small businesses (especially those that provide personal services) manage the day-to-day activities of, and receive the profits directly from, those businesses. Legally, a proprietorship is merely an extension of the owner. The owner is personally responsible for all the activities and obligations of the business.
2. *Partnership.* A partnership is a business association of two or more individuals. As in a proprietorship, the partners generally own and manage the business and are personally responsible for all the obligations of the business. A partnership organization makes sense when the workload and financial requirements associated with starting and operating a business are too much for one person.
3. *Corporation.* A corporation is a business that is chartered (incorporated) as a separate legal entity under the laws of a particular state or country. With a proprietorship or a partnership, the owners are the business. With a corporation, the operations and obligations of the business are legally separated from the personal affairs of the owners. Typically, stockholders in a corporation can freely buy and sell their interests, thus allowing the corporate ownership to change without dissolving the business. The stock-

Owners equity is decreased when the owners take back part of their investment. If the business is a corporation, distributions to the owners (stockholders) are called **dividends**. Owners equity can also be decreased if operations generate a loss instead of a profit. In the extreme, very poor performance can result in the loss of all the assets originally invested by the owners. For a corporation, the amount of accumulated earnings of the business that have not been distributed to owners is called **retained earnings**. The portion of owners equity contributed by owners in exchange for shares of stock is called **capital stock**. The amount of retained earnings plus the amount of capital stock equals the corporation s total owners equity.

**dividends** Distributions to the owners (stockholders) of a corporation.

**retained earnings** The amount of accumulated earnings of the business that have not been distributed to owners.

**capital stock** The portion of a corporation s owners equity contributed by owners in exchange for shares of stock.

**accounting equation** An algebraic equation that expresses the relationship between assets (resources), liabilities (obligations), and owners equity (net assets, or the residual interest in a business after all liabilities have been met): Assets = Liabilities + Owners Equity.

**ACCOUNTING EQUATION** The balance sheet presents information based on the basic **accounting equation**:

Assets = Liabilities + Owners Equity

In fact, the name *balance sheet* comes from the fact that a proper balance sheet must always balance total assets must equal the total of liabilities and owners equity. The accounting equation is not some miraculous coincidence; it is true by definition. Liabilities and owners equity are just the sources of funding used to buy the assets; that is, they are the claims (creditors claims and owners claims) against the assets. So, another way to view the accounting equation is that the total amount of the assets is equal to the total amount of funding needed to buy the assets. The total resources, therefore, equal the claims against those resources. This is illustrated in Exhibit 2-1.

The accounting equation is presented here merely to give you a glimpse of **double-entry accounting**. Chapter 3 gives an in-depth discussion of the equation elements and the mechanics of double-entry accounting.

holders elect a board of directors, which then hires executives to manage the corporation. The managers, as employees of the corporation, may or may not be stockholders. Thus, in a corporation there is a separation of ownership from management.

The primary advantages of incorporation are:

Investment funds can be accumulated from many different individuals, allowing for the development of larger, more efficient companies.
Individual owners can buy and sell their ownership shares without getting the permission of the other owners.
The liability of the owners is limited. If the business does not flourish, the worst that can happen to the owners is that they lose their investment; their other personal assets are not at risk.

The primary disadvantages of incorporation are:

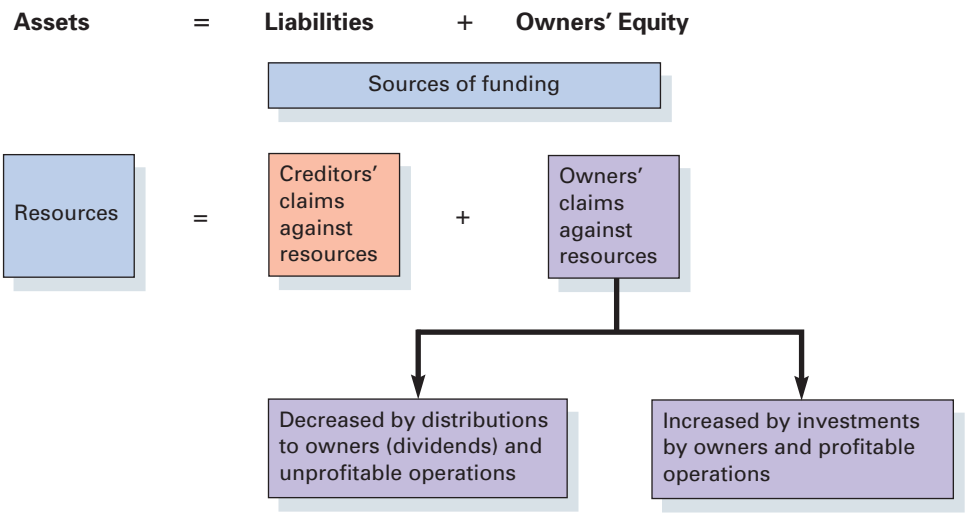
Corporate income is taxed twice: once when it is earned by the corporation and again when it is paid out to shareholders in the form of dividends.
Management of the business is separated from ownership. The owners must be cautious in monitoring the activities of their hired managers.

As shown below, the majority of business activity in the United States is conducted by corporations, although the actual number of proprietorships is greater.

| Type of Business | Number of Businesses | Sales |
|---|---|---|
| Sole proprietorships | 16.955 million | $ 843 billion |
| Partnerships | 1.654 million | 1,042 billion |
| Corporations | 4.631 million | 14,890 billion |

**Source:** U.S. Bureau of the Census, *Statistical Abstract of the United States: 1999* (Washington, D.C., 1999). Data are based on IRS information for 1996.

**exhibit 2-1** Elements of the Accounting Equation




**double-entry accounting** A system of recording transactions in a way that maintains the equality of the accounting equation.

**THE FORMAT OF A BALANCE SHEET** A simple balance sheet, adapted from Microsoft s 1999 balance sheet reproduced in Appendix A at the end of the book, is shown in Exhibit 2-2.

Note that a balance sheet is presented for a particular date because it reports a company s financial position at a point in time. The balance sheet in Exhibit 2-2 presents Microsoft s financial position as of June 30, 1999.

**exhibit 2-2** Simplified Balance Sheet for Microsoft

**Microsoft Corporation**
**Balance Sheet**
**June 30, 1999**
**(amounts in millions)**

| Assets | | Liabilities | |
|---|---|---|---|
| Cash and short-term investments | $17,236 | Accounts payable | $ 874 |
| Accounts receivable | 2,245 | Accrued compensation | 396 |
| Other current assets | 752 | Income taxes payable | 1,607 |
| Property, plant, and equipment | 1,611 | Unearned revenue | 4,239 |
| Equity and other investments | 14,372 | Other current liabilities | 1,602 |
| Other assets | 940 | Long-term loans | 0 |
| | | Total liabilities | $ 8,718 |
| | | **Owners Equity** | |
| | | Capital stock | $14,824 |
| | | Retained earnings | 13,614 |
| Total assets | $37,156 | Total liabilities and owners equity | $37,156 |

As illustrated, the balance sheet is divided into the three major sections we have described: assets, liabilities, and owners equity. The asset section identifies the types of assets owned by Microsoft (cash, for example) and the monetary amounts associated with those assets. The liability section defines the extent and nature of Microsoft s debts (income taxes not yet paid, for example).

Remember that the balance sheet is not merely a report to be prepared and forgotten; it is a summary of important information that is useful to investors and creditors. For example, if you were a banker, would you give a loan to Microsoft based on the information from the June 30, 1999, balance sheet? Of course you would, because you see that Microsoft already has enough cash on hand ($17 billion) to be able to pay off all existing liabilities ($8.7 billion) almost two times over. Based on the balance sheet information, you can see that any loan to Microsoft could be easily repaid.

STOP & THINK Actually, the Microsoft balance sheet is quite unusual. Very few companies have the large amount of cash ($17 billion) and low amount of long-term debt ($0) that Microsoft has. Is it good for a company to have so much cash?

Owners equity completes the balance sheet. This section identifies the portion of Microsoft s resources that were contributed by owners, either in exchange for shares of stock or as undistributed earnings since Microsoft s inception. Together with liabilities, owners equity indicates how a company is financed (whether by borrowing or by owner contributions and operating profits). You can see that Microsoft has been financed primarily through owner investment. Almost half of this owner investment ($13.6 billion) has been in the form of retained earnings.

**CLASSIFIED AND COMPARATIVE BALANCE SHEETS** Imagine that two people each owe you $10,000. You ask to see the balance sheets of each. Borrower A has assets of $10,000 in the form of cash. Borrower B has assets of $10,000 in the form of undeveloped land. If you need to collect the loan in the next two weeks, which of the two borrowers is more likely to be able to pay you back? Borrower A is more likely to be able to repay you quickly because the assets of A are more *liquid*, meaning that they are in the form of cash or can be easily converted into cash. Assets such as undeveloped land are said to be *illiquid* in that it takes time and effort to convert them into cash. This illustration shows that not all assets are the same. For some purposes, it is very important to distinguish between current assets, which are generally more liq-

**caution**

Don t worry about fully understanding all the items in Safeway s classified balance sheet, such as the Property under capital leases and the Cumulative translation adjustments. If there was nothing else to learn, this book would be much shorter and this accounting class would last only two weeks.

uid, and long-term assets. A balance sheet that distinguishes between current and long-term assets is called a **classified balance sheet**.

To illustrate a classified balance sheet, we consider the balance sheet for Safeway, the supermarket chain described in the opening scenario of this chapter. In Exhibit 2-3, Safeway s assets are classified as current, or short-term, and long-term.

**Current assets** include cash and other assets that are expected to be converted to cash within a year. Current assets generally are listed in decreasing order of **liquidity**; cash is listed first, followed by the other current assets, such as accounts receivable. **Long-term assets**, such as land, buildings, and equipment, are those that a company needs in order to operate its business over an extended period of time.

Like assets, liabilities usually are classified as either current (obligations expected to be paid within a year) or long-term. Accounts payable, for example, usually would be paid within 30 to 60 days, whereas a mortgage may remain on the books for 20 to 30 years before it is fully paid.

**classified balance sheet** A balance sheet in which assets and liabilities are subdivided into current and long-term categories.

**current assets** Cash and other assets that can be easily converted to cash within a year.

**liquidity** The ability of a company to pay its debts in the short run.

**long-term assets** Assets that a company needs in order to operate its business over an extended period of time.

Safeway s balance sheet in Exhibit 2-3 includes financial information for both the current year and the preceding year. Most companies prepare such **comparative financial statements** so that readers can identify any significant changes in particular items. For example, notice that Safeway s total assets increased by $3,510.7 million ($14,900.3 million − $11,389.6 million) from 1998 to 1999. Where did the money come from to finance this increase in assets? Most of it came from an increased amount of loans (liabilities increased by $2,507 million).

**comparative financial statements** Financial statements in which data for two or more years are shown together.

**LIMITATIONS OF A BALANCE SHEET** Although the balance sheet is useful in showing the financial status of a company, it does have some limitations. The primary limitation of the balance sheet is that it does not reflect the current value or worth of a company. Refer back to the balance sheet numbers for Microsoft in Exhibit 2-2. If the balance sheet were perfect, meaning that it included all economic assets reported at their current market values, then the amount of owners equity would be equal to the market value of the company. In the case of Microsoft, the value of the company would be $28.438 billion, which is the amount of assets that would remain after all the liabilities were repaid. The actual market value of Microsoft on May 18, 2000, however, was $348 billion. How could the balance sheet be so wrong?

The discrepancy between recorded balance sheet value and actual market value is the result of the following two factors:

1. Accountants record many assets at their purchase cost, not at their current market value. **Market value** is the price that would have to be paid to buy the same asset today. For example, if land was obtained ten years ago, it would still be reported on the balance sheet at its original cost, even though its market value may have increased dramatically.
2. Not all economic assets are included in the balance sheet. For example, important economic assets of Microsoft are its proven track record of successful products, the genius of Bill Gates, and a strong, established position in the marketplace (ask **NOVELL**, **WORDPERFECT**, **LOTUS**, and **NETSCAPE** what it is like to compete against Microsoft). These intangible factors are all very valuable economic assets. In fact, they are by far the most valuable assets Microsoft has. Nevertheless, these important economic assets are outside the normal accounting process.

**market value** The value of a company as measured by the number of shares of stock outstanding multiplied by the current market price of the stock; the current value of a business.

Because the balance sheet can underreport the value of some long-term assets, and not report other important economic assets, the accounting **book value** of a company (measured by the amount of owners equity) is usually less than the company s market value, measured by the market price per share times the number of shares of stock. This is illustrated in Exhibit 2-4 using data for the ten largest companies (in terms of market value) in the United States.

**book value** The value of a company as measured by the amount of owners equity; that is, assets less liabilities.

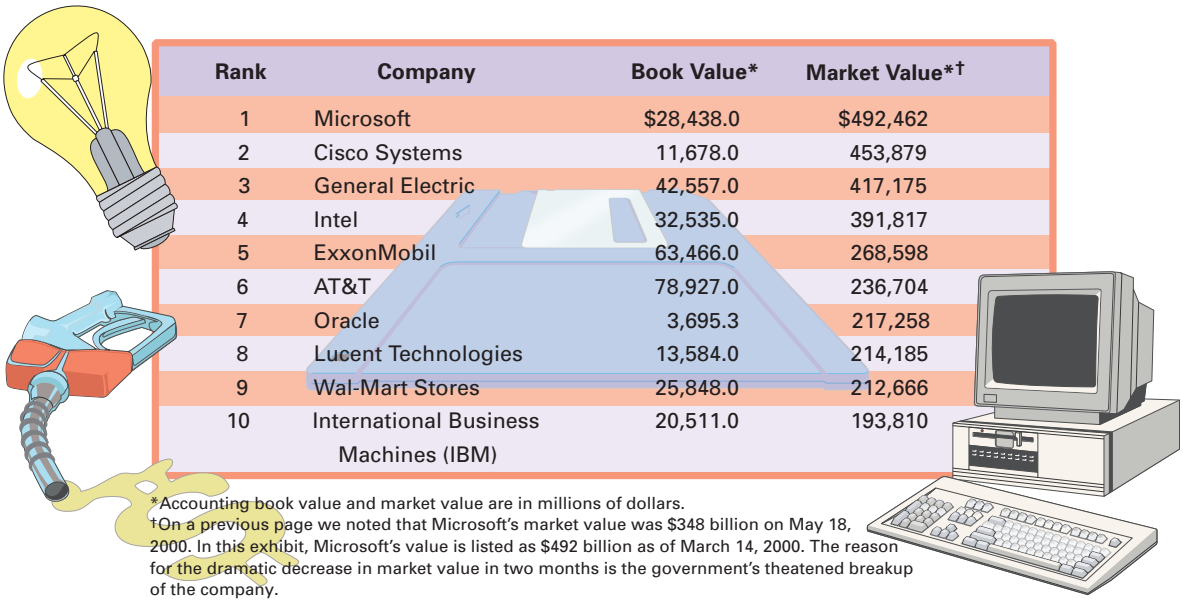
Despite its deficiencies, the balance sheet is a useful source of information regarding the financial position of a business. A lender would never loan a company money without knowing what assets the company has and what other loans the company is already obligated to repay. An investor shouldn t pay money in exchange for ownership in a company without knowing something about the company s existing resources and obligations. When a balance sheet is classified, and when comparative data are provided, the balance sheet provides an informative picture of a company s financial position.

**exhibit 2-3** Classified Balance Sheets for Safeway

**Safeway, Inc.**
**Comparative Balance Sheet**
**December 28, 1999 and December 30, 1998**
**(amounts in millions)**

| | 1999 | 1998 |
|---|---|---|
| **Assets** | | |
| **Current assets:** | | |
| Cash | $ 106.2 | $ 45.7 |
| Accounts receivable | 292.9 | 200.1 |
| Merchandise inventories | 2,444.9 | 1,856.0 |
| Prepaid expenses and other current assets | 208.1 | 218.1 |
| Total current assets | $ 3,052.1 | $ 2,319.9 |
| **Property:** | | |
| Land | $ 996.2 | $ 794.1 |
| Buildings | 2,502.3 | 2,069.9 |
| Leasehold improvements | 1,784.3 | 1,498.3 |
| Fixtures and equipment | 3,852.4 | 3,282.6 |
| Property under capital leases | 591.4 | 379.2 |
| Total property | $ 9,726.6 | $ 8,024.1 |
| Less accumulated depreciation and amortization | 3,281.9 | 2,841.5 |
| Total property, net | $ 6,444.7 | $ 5,182.6 |
| **Other assets:** | | |
| Goodwill | $ 4,786.6 | $ 3,348.0 |
| Prepaid pension costs | 405.6 | 369.6 |
| Investments in unconsolidated affiliates | 131.6 | 115.2 |
| Other assets | 79.7 | 54.3 |
| Total assets | $14,900.3 | $11,389.6 |
| **Liabilities and Stockholders Equity** | | |
| **Current liabilities:** | | |
| Accounts payable | $ 1,878.4 | $ 1,595.9 |
| Accrued salaries and wages | 387.7 | 348.9 |
| Other current liabilities | 1,316.5 | 948.8 |
| Total current liabilities | $ 3,582.6 | $ 2,893.6 |
| **Long-term debt:** | | |
| Notes and debentures | $ 5,922.0 | $ 4,242.6 |
| Obligations under capital leases | 435.4 | 408.0 |
| Total long-term debt | $ 6,357.4 | $ 4,650.6 |
| Deferred income taxes | 379.1 | 216.9 |
| Accrued claims and other liabilities | 495.4 | 546.4 |
| Total liabilities | $10,814.5 | $ 8,307.5 |
| **Stockholders equity:** | | |
| Common stock: par value $0.01 per share | $ 5.6 | $ 5.5 |
| Additional paid-in capital | 1322.4 | 1,297.3 |
| Unexercised warrants purchased | (126.6) | (126.0) |
| Cumulative translation adjustments | (11.5) | (19.7) |
| Retained earnings | 2,895.9 | 1,925.0 |
| Total stockholders equity | $ 4,085.8 | $ 3,082.1 |
| Total liabilities and stockholders equity | $14,900.3 | $11,389.6 |

**exhibit 2-4** Book Value and Market Value for the Ten Largest U.S. Firms



| Rank | Company | Book Value* | Market Value*† |
|---|---|---|---|
| 1 | Microsoft | $28,438.0 | $492,462 |
| 2 | Cisco Systems | 11,678.0 | 453,879 |
| 3 | General Electric | 42,557.0 | 417,175 |
| 4 | Intel | 32,535.0 | 391,817 |
| 5 | ExxonMobil | 63,466.0 | 268,598 |
| 6 | AT&T | 78,927.0 | 236,704 |
| 7 | Oracle | 3,695.3 | 217,258 |
| 8 | Lucent Technologies | 13,584.0 | 214,185 |
| 9 | Wal-Mart Stores | 25,848.0 | 212,666 |
| 10 | International Business Machines (IBM) | 20,511.0 | 193,810 |

*Accounting book value and market value are in millions of dollars.
†On a previous page we noted that Microsoft's market value was $348 billion on May 18, 2000. In this exhibit, Microsoft's value is listed as $492 billion as of March 14, 2000. The reason for the dramatic decrease in market value in two months is the government's theatened breakup of the company.

**Source:** Fortune 500 listing, 1999. Market values are as of March 14, 2000. Accounting book values are for the end of the immediately preceding fiscal year. Accessible at **http://www.fortune.com**.

## to summarize

The balance sheet provides a summary of the financial position of a company at a particular date. It helps external users assess the financial relationship between assets (resources) and liabilities and owners equity (claims against those resources). Assets and liabilities are usually classified as either current or long-term and are presented in descending order of liquidity. For a corporation, owners equity consists of directly invested funds as well as retained earnings. Classified and comparative balance sheets provide useful information for readers of financial statements. Because not all economic assets are included on the balance sheet, the book value as shown in the balance sheet is usually less than the market value of the company.

## The Income Statement

Almost every day, *The Wall Street Journal* includes a section called Digest of Earnings Reports that contains the net income, or earnings, figures announced by companies the day before. The stock prices of companies go up or down depending on whether their announced earnings meet the expectations of investors. For example, on April 19, 1997, Microsoft stock shot up from $98.125 to $107.625 per share in response to news of an 85% increase in Microsoft s net income as compared to the previous year. This high level of interest centered on net income makes it apparent that investors find this accounting number useful in evaluating the health and performance of a business.

Net income is reported in the income statement. The income statement shows the results of a company s operations for a period of time (a month, a quarter, or a year). The income statement summarizes the revenues generated and the costs incurred (expenses) to generate those revenues. The bottom line of an income statement is net income (or net loss), the difference between revenues and expenses. To help you understand an income statement, we must first define its elements revenues, expenses, and net income (or net loss).

**revenue** Increase in a company s resources from the sale of goods or services.

**REVENUES** **Revenue** is the amount of assets created through business operations. Think of revenue as another way for a company to acquire assets. In the same way that assets can be acquired by borrowing or by owners investment, assets can also be acquired by providing a product or service for which customers are willing to pay. Manufacturing and merchandising companies receive revenues from the sale of merchandise. For example, Safeway s revenue is the cash that customers pay in exchange for groceries. A service enterprise generates revenues from the fees it charges for the services it performs. For example, a portion of the sales price of Microsoft software is not payment for the software itself, but instead is an advance payment for the customer support service that Microsoft promises. Companies might also earn revenues from other activities, such as charging interest or collecting rent. When goods are sold or services performed, the resulting revenue is in the form of cash or accounts receivable (a promise from the buyer to pay for the goods or services by a specified date in the future). Revenues thus generally represent an increase in total assets. These new assets are not tied to any liability obligation; therefore, the assets belong to the owners and thus represent an increase in owners equity.

**expenses** Costs incurred in the normal course of business to generate revenues.

**EXPENSES** **Expenses** are the amount of assets consumed through business operations. Expenses are the costs incurred in normal business operations to generate revenues. Employee salaries and utilities used during a period are two common examples of expenses. For Safeway, the primary expense is the wholesale cost of the groceries that it sells to its customers at retail. Just as revenues represent an increase in assets and equity, expenses generally represent a decrease in assets and in equity.

In considering revenues and expenses, remember that not all inflows of assets are revenues; nor are all outflows of assets considered to be expenses. For example, cash may be received by borrowing from a bank, which is an increase in a liability, not a revenue. Similarly, cash may be paid for supplies, which is an exchange of one asset for another asset, not an expense. The details of properly identifying revenues and expenses will be discussed further in Chapter 3.

**net income (net loss)** An overall measure of the performance of a company; equal to revenues minus expenses for the period.

**NET INCOME (OR NET LOSS)** **Net income**, sometimes called earnings or profit, is an overall measure of the performance of a company. Net income reflects the company s accomplishments (revenues) in relation to its efforts (expenses) during a particular period of time. If revenues exceed expenses, the result is called net income (revenues − expenses = net income). If expenses exceed revenues, the difference is called **net loss**. Because net income results in an increase in resources from operations, owners equity is also increased; a net loss decreases owners equity. Exhibit 2-5 lists the ten U.S. companies with the highest net incomes in 1999.

It is important to note the difference between revenues and net income. Both concepts represent an increase in the net assets (assets − liabilities) of a firm. However, revenues represent total resource increases; expenses are subtracted from revenues to derive net income or net loss. Thus, whereas revenue is a gross concept, income (or loss) is a net concept.

At its Web site (**http://www.fortune.com**), *Fortune* magazine provides selected stories from current issues as well as summaries of its famous lists: the Fortune 500 (largest companies in the United States) and the Global 500 (largest companies in the world).

1. Search the Fortune 500 Top Performers to find out which U.S. company has the most assets.
2. Search the Global 500 Top Performers and identify which company employs more people than any other company in the world.

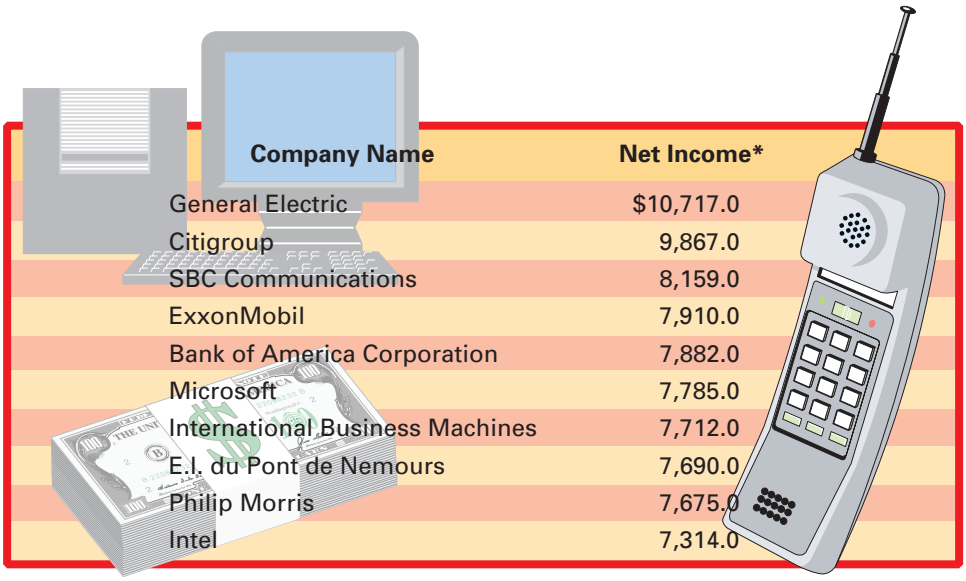
**THE FORMAT OF AN INCOME STATEMENT** Comparative income statements, which have been modified to a multi-step format, for Safeway are presented in Exhibit 2-6. In contrast to the balance sheet, which is as of a particular date, the income statement refers to the year ended. Remember, the income statement covers a period of time; the balance sheet is a report at a point in time. The multi-step format illustrated here highlights several profit measurements including gross profit, operating income, and net income.

The income statement usually shows two main categories, revenues and expenses, although several subcategories may also be presented (as illustrated). Revenues are listed first. Typical operating expenses for most businesses are employee salaries, utilities, and advertising. For Safeway, as with any retail firm, the largest expense is for cost of goods sold. The difference between sales and cost of goods sold represents the difference between the retail price Safeway receives from a grocery sale and the wholesale cost of the groceries that are sold. This difference (sales − cost of goods sold) is called **gross profit** or **gross margin**.

**gross profit (gross margin)** The excess of net sales revenue over the cost of goods sold.

Expenses are sometimes divided into operating and nonoperating categories. The primary nonoperating expenses are interest and income taxes. These expenses are called nonoperating because they have no connection with the specific nature of the operation of the business. For ex-

**exhibit 2-5** Top Ten U.S. Companies, Ranked by Net Income



| Company Name | Net Income* |
|---|---|
| General Electric | $10,717.0 |
| Citigroup | 9,867.0 |
| SBC Communications | 8,159.0 |
| ExxonMobil | 7,910.0 |
| Bank of America Corporation | 7,882.0 |
| Microsoft | 7,785.0 |
| International Business Machines | 7,712.0 |
| E.I. du Pont de Nemours | 7,690.0 |
| Philip Morris | 7,675.0 |
| Intel | 7,314.0 |

*Net income is in millions of dollars.

**Source:** Fortune 500 listing, 1999. Accessible at **http://www.fortune.com**.

ample, Safeway and Microsoft deal with interest and income taxes in a similar way, even though the two companies operate in completely different industries.

**gains (losses)** Money made or lost on activities outside the normal operation of a company.

Two other items that frequently appear in the income statement are **gains** and **losses**. Gains and losses refer to money made or lost on activities outside the normal business of a company. For example, when Safeway receives cash for selling groceries, it is called revenue. But when

**exhibit 2-6** Adapted Comparative Income Statements for Safeway

**Safeway, Inc.**
**Comparative Income Statement**
**For the Years Ended December 28, 1999**
**and December 30, 1998**
**(in millions)**

| | 1999 | 1998 |
|---|---|---|
| Revenues: | | |
| Sales | $28,859.9 | $24,484.2 |
| Less: Cost of goods sold | 20,349.2 | 17,359.7 |
| Gross profit | $ 8,510.7 | $ 7,124.5 |
| Less: Operating and administrative expense | 6,411.4 | 5,466.5 |
| Goodwill amortization | 101.4 | 56.3 |
| Operating income | $ 1,997.9 | $ 1,601.7 |
| Add: Other income | 38.3 | 30.2 |
| Less: Interest expense | 362.2 | 235.1 |
| Less: Income tax expense | 703.1 | 590.2 |
| Net income | $ 970.9 | $ 806.6 |
| Basic earnings per share | $ 1.95 | $1.67 |

Safeway makes money by selling an old delivery truck, the amount is called a gain, not revenue, because Safeway is not in the business of selling trucks.

Recently, companies have been providing an additional measure of income comprehensive income. The wealth of a company is affected in a variety of ways that have nothing to do with the business operations of the company. For example, changes in exchange rates can cause the U.S. dollar value of a company s foreign subsidiaries to increase or decrease. **Comprehensive income** is the number used to reflect an overall measure of the change in a company s wealth during the period.

**comprehensive income** A measure of the overall change in a company s wealth during a period; consists of net income plus changes in wealth resulting from changes in investment values and exchange rates.

In addition to net income, comprehensive income includes items that, in general, arise from changes in market conditions unrelated to the business operations of a company. These items are excluded from net income because they are viewed as yielding little information about the economic performance of a company s business operations. Nevertheless, they do affect the value of assets and liabilities reported in the balance sheet, so they are reported as part of comprehensive income.

The most common examples of items included in comprehensive income include changes in foreign currency exchange rates, changes in the value of certain investment securities, and changes in the value of certain derivative financial instruments. Each of these items is affected by market conditions, affects a company s reported assets and liabilities, yet cannot be influenced in any large degree by the company. Therefore, they are reported as part of a firm s comprehensive income. To summarize, net income is a measure of a company s performance during the period; comprehensive income includes the net income performance measure plus other wealth changes resulting from changes in investment values and exchange rates.

**earnings (loss) per share (EPS)** The amount of net income (earnings) related to each share of stock; computed by dividing net income by the number of shares of stock outstanding during the period.

One final bit of information required on the income statements of corporations is **earnings (loss) per share (EPS)**. This EPS amount is computed by dividing the net income (earnings or loss) for the current period by the number of shares of stock outstanding during the period. Earnings per share information tells the owner of a single share of stock how much of the net income for the year belongs to him or her.

Like the balance sheet, the income statement usually shows the comparative results for two or more periods, allowing investors and creditors to evaluate how profitable an enterprise has been during the current period as compared with earlier periods. For example, examination of Safeway s comparative income statements in Exhibit 2-6 shows that net income in 1999 was 20% higher [($970.9 − $806.6) ÷ $806.6] than in 1998. Further analysis of the income statement is introduced later in this chapter and reinforced throughout the text. (For another illustration of a comparative income statement, see the income statement for Microsoft in Appendix A at the back of the book.)

**statement of retained earnings** A report that shows the changes in retained earnings during a period of time.

**THE STATEMENT OF RETAINED EARNINGS** In addition to an income statement, corporations sometimes prepare a **statement of retained earnings**. This statement identifies changes in retained earnings from one accounting period to the next. As illustrated in Exhibit 2-7, the

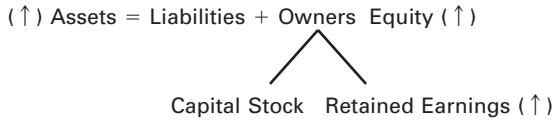
**exhibit 2-7** Illustrated Statement of Retained Earnings for Safeway

**Safeway, Inc.**
**Illustrated Statement of Retained Earnings**
**For the Year Ended December 28, 1999**
**(in millions)**

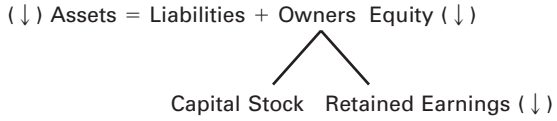
| | |
|---|---|
| Retained earnings, January 1, 1999 | $1,925.0 |
| Add net income for the year | 970.9 |
| | $2,895.9 |
| Less dividends | 0 |
| Retained earnings, December 28, 1999 | $2,895.9 |

statement shows a beginning retained earnings balance, the net income for the period, a deduction for any dividends paid, and an ending retained earnings balance. For Safeway, which paid no dividends during 1999, its retained earnings would simply increase by the amount of reported net income.

Note how the accounting equation is affected by the elements reported in the statement of retained earnings. Net income results in an increase in net assets and a corresponding increase in Retained Earnings, which increases Owners Equity.




Dividends reduce net assets (e.g., cash) and similarly reduce Retained Earnings, which reduces Owners Equity.




Corporations sometimes present a *statement of stockholders equity* instead of a statement of retained earnings. The statement of stockholders equity, illustrated for Microsoft in Appendix A at the back of the book, is more detailed and includes changes in capital stock as well as changes in retained earnings.

## to summarize

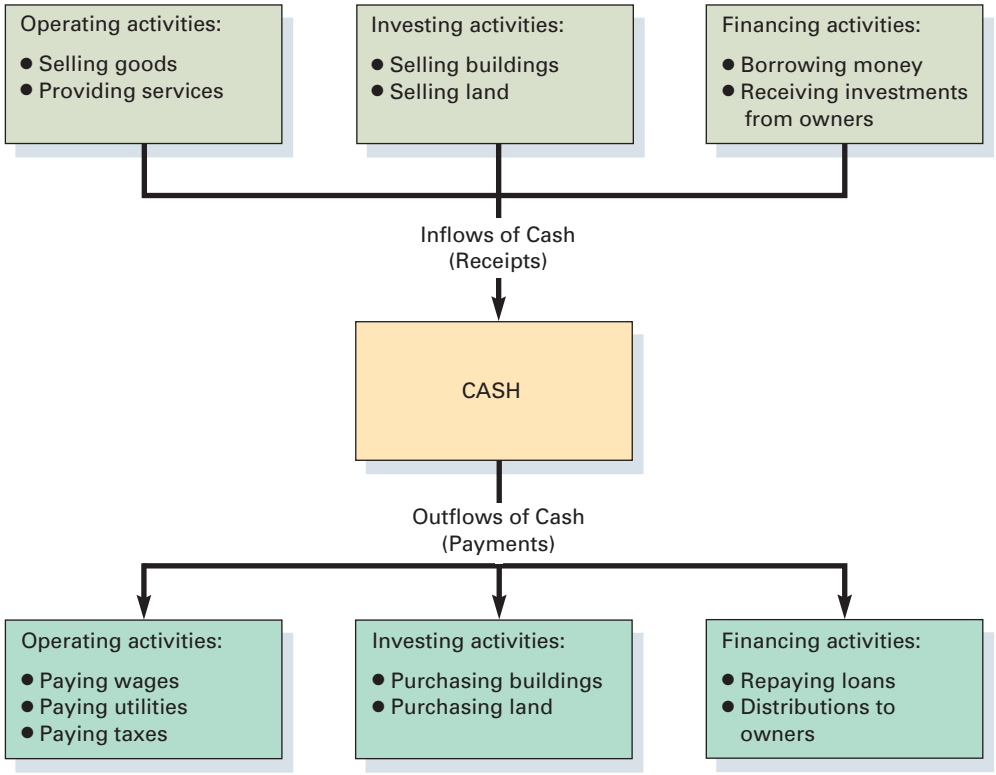
The income statement provides a measure of the success of an enterprise over a specified period of time. The income statement shows the major sources of revenues generated and the expenses associated with those revenues. The difference between those revenues and expenses is net income or net loss. Gains and losses refer to money made or lost on activities outside the normal activities of a business. The income statements of corporations must also include earnings per share figures. Comprehensive income includes net income as well as other wealth changes resulting from changes in investment values and exchange rates. Like balance sheets, income statements are usually prepared on a comparative basis. A statement of retained earnings or statement of stockholders equity is often provided by corporations in their annual reports to shareholders.

## The Statement of Cash Flows

Net income is the single best measure of a company s economic performance. However, anyone who has paid rent or college tuition knows that bills must be paid with cash, not with economic performance. Accordingly, in addition to net income, investors and creditors also desire to know how much actual cash a company s operations generate during a period and how that cash is used. The statement of cash flows shows the cash inflows (receipts) and cash outflows (payments) of an entity during a period of time. As shown in Exhibit 2-8, companies receive cash primarily by selling goods or providing services, by selling other assets, by borrowing, and by receiving cash from investments by owners. Companies use cash to pay current operating expenses such as wages, utilities, and taxes; to purchase additional buildings, land, and otherwise expand operations; to repay loans; and to pay their owners a return on the investments that have been made.

In the statement of cash flows, individual cash flow items are classified according to three main activities: operating, investing, and financing.

**exhibit 2-8** Cash Flows




**operating activities** Activities that are part of the day-to-day business of a company.

**OPERATING ACTIVITIES** **Operating activities** are those activities that are part of the day-to-day business of a company. Cash receipts from selling goods or from providing services are the major operating cash inflow. Major operating cash outflows include payments to purchase inventory and to pay wages, taxes, interest, utilities, rent, and similar expenses.

**investing activities** Activities associated with buying and selling long-term assets.

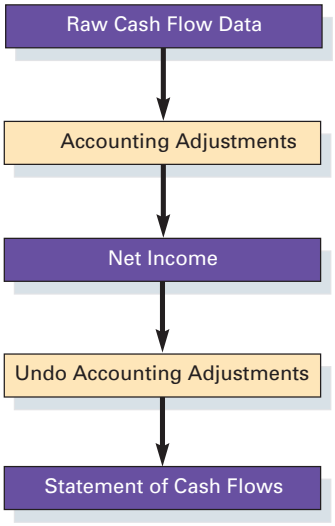
**INVESTING ACTIVITIES** The primary **investing activities** are the purchase and sale of land, buildings, and equipment. You can think of investing activities as those activities associated with buying and selling long-term assets.

**financing activities** Activities whereby cash is obtained from or repaid to owners and creditors.

**FINANCING ACTIVITIES** **Financing activities** are those activities whereby cash is obtained from or repaid to owners and creditors. For example, cash received from owners investments, cash proceeds from a loan, or cash payments to repay loans would all be classified under financing activities.

Conceptually, the statement of cash flows is the easiest to prepare of the three primary financial statements. Imagine examining every check and deposit slip you have written in the past year and sorting them into three piles operating, investing, and financing. You would have to exercise some judgment in deciding which pile some items go into (for example, is the payment of interest an operating or a financing activity?). But overall, the three-way categorization of cash flows is not that difficult. In essence, this is all that is involved in the preparation of a statement of cash flows. As you will see in Chapter 13, however, actual preparation of a statement of cash flows can sometimes be challenging. The reason for this is that traditional accounting systems are designed to streamline the computation of net income. So, instead of preparing the statement of cash flows directly from the raw cash flow data, the process is as shown in Exhibit 2-9. The raw cash flow data are transformed into revenue and expense data using the accounting adjustments, assumptions, and estimates that you will learn about in this text. Then, to prepare the statement of cash flows, all of those adjustments must be undone to get back to the raw cash flow data. Challenging, but by the time we get to Chapter 13, you will be ready for it.

**exhibit 2-9** Cash Flow to Net Income to Cash Flow




**fyi**

Notice that the Boston Celtics has chosen June 30 as the end of its fiscal year. About two-thirds of large U.S. companies choose December 31. The Boston Celtics uses June 30 because that coincides with a natural lull in its business (the playoffs are over and the next regular season is months away). Safeway chooses the last Saturday of the year to make sure that each fiscal year contains a whole number of weeks.

Exhibit 2-10 contains the statement of cash flows for the **BOSTON CELTICS** for the year ended June 30, 1996[3]. As sports fans know, the Boston Celtics is the NBA team with the most championships in history. What is not widely known is that ownership shares in the Boston Celtics could once be purchased by the general public and were traded on the New York Stock Exchange. Because the Celtics was a publicly traded company, it was required to make its financial statements publicly available, thus providing the information for Exhibit 2-10. As with balance sheets and income statements, companies usually provide comparative statements of cash flows. However, we have elected not to show comparative statements of cash flows in order to keep the Celtics illustration simple. (The Microsoft financial statements in Appendix A provide comparative statements of cash flows.)

One interesting item to note in the Celtics cash flow statement is the $5.2 million payment for deferred compensation. This represents players salaries that were earned (and reported as expenses) in prior years but not paid until 1996. Also notice the large amount of activity in buying and selling investment securities $171 million in securities purchased and $157 million sold. And you thought that the Celtics only played basketball.

## to summarize

The statement of cash flows is one of the three primary financial statements. It shows the significant cash inflows (receipts) and cash outflows (payments) of a company for a period of time. These cash flows are classified according to operating, investing, and financing activities. The statement of cash flows is discussed and illustrated in Chapter 13.

## How the Financial Statements Tie Together

**articulation** The interrelationships among the financial statements.

Although we have introduced the primary financial statements as if they were independent of one another, they are interrelated and tie together. In accounting language, they articulate. **Articulation** refers to the relationship between an operating statement (the income statement or the statement of cash flows) and comparative balance sheets, whereby an item on the operating statement helps explain the change in an item on the balance sheet from one period to the next.

3 Beginning in 1997, the Celtics were no longer publicly traded.

exhibit 2-10 Statement of Cash Flows for the Boston Celtics

**BOSTON CELTICS LIMITED PARTNERSHIP**
**Statement of Cash Flows**
**For the Year Ended June 30, 1996**

| | | |
|---|---|---|
| **CASH FLOWS FROM OPERATING ACTIVITIES** | | |
| **Receipts:** | | |
| Basketball regular season receipts: | | |
| Ticket sales | $31,323,249 | |
| Television and radio broadcast rights fees | 19,908,800 | |
| Other (principally promotional advertising) | 8,424,038 | |
| Basketball playoff receipts | 360,895 | |
| | | 60,016,982 |
| **Outflows:** | | |
| Basketball regular season expenditures: | | |
| Team expenses | 26,066,875 | |
| Game expenses | 2,481,007 | |
| Basketball playoff expenses | 0 | |
| General and administrative expenses | 13,996,805 | |
| Selling and promotional expenses | 1,333,238 | |
| | | 43,877,925 |
| | | 16,139,057 |
| Interest income | | 9,553,938 |
| Interest expense | | (4,624,043) |
| Ticket refunds paid | | (504) |
| Proceeds from league expansion | | 4,490,673 |
| Payment of income taxes | | (4,973,883) |
| Payment of deferred compensation | | (5,226,095) |
| Other operating cash outflows | | (2,931,742) |
| NET CASH FLOWS FROM OPERATING ACTIVITIES | | 12,427,401 |
| **CASH FLOWS FROM INVESTING ACTIVITIES** | | |
| Purchases of investment securities | (171,422,268) | |
| Proceeds from sales of investment securities | 156,655,561 | |
| Net cash proceeds from the sale of Boston Celtics Broadcasting Limited Partnership | 77,597,929 | |
| Capital expenditures | (796,424) | |
| Other investing receipts | 293,503 | |
| NET CASH FLOWS FROM INVESTING ACTIVITIES | | 62,328,301 |
| **CASH FLOWS (USED BY) FINANCING ACTIVITIES** | | |
| Repayment of bank borrowings | (80,000,000) | |
| Repurchase of Boston Celtics Limited Partnership shares from owners | (1,941,450) | |
| Cash distributions to owners | (26,395,139) | |
| NET CASH FLOWS (USED BY) FINANCING ACTIVITIES | | (108,336,589) |
| NET (DECREASE) IN CASH | | (33,580,887) |
| Cash at beginning of period | | 39,563,015 |
| CASH AT END OF PERIOD | | $ 5,982,128 |

Exhibit 2-11 shows how the financial statements tie together. Note that the beginning amount of cash from the 1998 balance sheet is added to the net increase or decrease in cash (from the statement of cash flows) to derive the cash balance as reported on the 1999 balance sheet. Similarly, the retained earnings balance as reported on the 1999 balance sheet comes from the beginning retained earnings balance (1998 balance sheet) plus net income for the period (from the income statement) less dividends paid. As you study financial statements, these relationships will become clearer and you will understand the concept of articulation better.

## 2

Recognize the need for financial statement notes and identify the types of information included in the notes.

**notes to the financial statements** Explanatory information considered an integral part of the financial statements.

## NOTES TO THE FINANCIAL STATEMENTS

The three primary financial statements contain a lot of information. Still, three summary reports cannot possibly tell financial statement users everything they want to know about a company. Additional information is given in the **notes to the financial statements**. In fact, in a typical annual report, the notes go on for 15 pages or more, whereas the primary financial statements fill only 3 pages. The notes tell about the assumptions and methods used in preparing the financial statements and also give more detail about specific items.

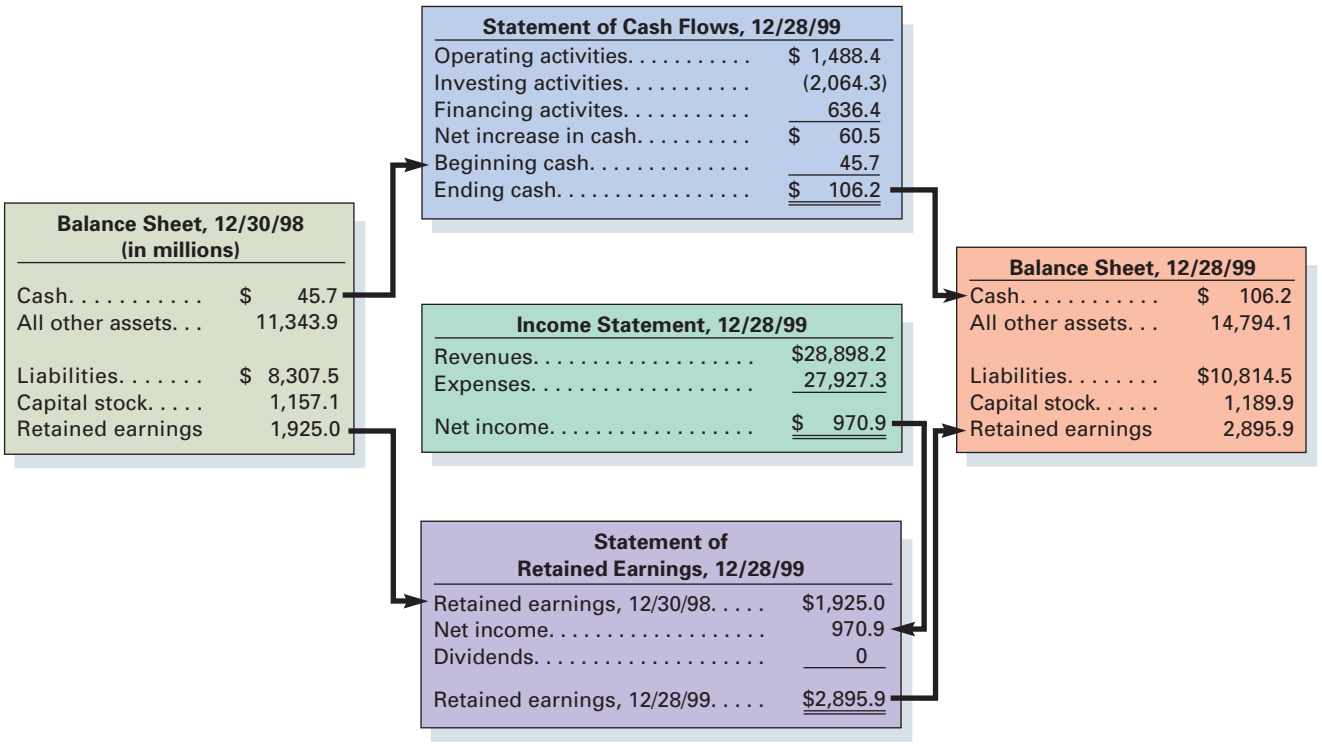
The financial statement notes are of the following four general types:

1. Summary of significant accounting policies.
2. Additional information about the summary totals found in the financial statements.
3. Disclosure of important information that is not recognized in the financial statements.
4. Supplementary information required by the Financial Accounting Standards Board (FASB) or the Securities and Exchange Commission (SEC).

### Summary of Significant Accounting Policies

As mentioned earlier, accounting involves making assumptions, estimates, and judgments. In addition, in some settings, there is more than one acceptable method of accounting for certain

**exhibit 2-11** How the Financial Statements Tie Together



## business environment essay

**How to Get Your Own Copy of Microsoft s Financial Statements** The complete Microsoft annual report containing the 1999 financial statements is reproduced at the end of this text. Is this secret information, available only to owners of this book? No. Anyone can get a copy of the most recent annual report of Microsoft or any other public corporation in the United States. Any of the following methods will work:

Become an investor in Microsoft by buying shares of stock in the company. As a Microsoft investor, you are entitled to receive a copy of the annual report each year. In fact, according to U.S. government regulations, Microsoft is required to send a copy of the annual report to all of its investors within three months of the end of Microsoft s fiscal year on June 30.

Call, write, fax, or e-mail Microsoft s Investor Relations department. The phone numbers and addresses are given in the Microsoft annual report re-

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In its 1920 annual report, **IBM** included zero pages of notes (and the dollar amounts were carried out to the penny). In 1966, there were four pages of notes (and dollar amounts were rounded to the nearest dollar). In 1996, IBM s annual report included 26 pages of notes (and dollar amounts were rounded to the nearest million).

items. For example, there are a variety of acceptable ways of estimating how much a building depreciates (wears out) in a year. In order for financial statement users to be able to properly interpret the three primary financial statements, they must know what procedures were used in preparing those statements. This information about accounting policies and practices is given in the financial statement notes.

## Additional Information about Summary Totals

For a large company, such as **MICROSOFT** or **SAFEWAY**, one summary number in the financial statements represents literally thousands of individual items. For example, the $5.922 billion in long-term notes and debentures included in Safeway s 1999 balance sheet (see Exhibit 2-3) represents loans of U.S. dollars, loans of Canadian dollars, mortgages, senior secured debentures, senior subordinated debentures, an unsecured bank credit agreement, and more. The balance sheet includes only one number, with the details in the notes.

## Disclosure of Information Not Recognized

One way to report financial information is to boil down all the estimates and judgments into one number and then report that one number in the financial statements. This is called *recognition*. The key assumptions and estimates are then described in a note to the financial statements. Another approach is to skip the financial statements and just rely on the note to convey the information to users. This is called *disclosure*. Disclosure is the accepted way to convey information to users when the information is too uncertain to be recognized. For example, in July 1988, Safeway suffered a fire in one of its warehouses in Richmond, California. As of February 10, 2000, there were still 2,600 unsettled lawsuits against Safeway stemming from the fire. It is impossible to summarize the complexity of the potential outcome of these lawsuits in one financial statement number; so, Safeway describes the situation, in some detail, in the notes to the financial statements.

## Supplementary Information

The FASB and SEC both require supplementary information that must be reported in the financial statement notes. For example, the FASB requires the disclosure of quarterly financial information and of business segment information. A sample of this type of disclosure can be seen in Microsoft s annual report in Appendix A. In the notes to its financial statements, Microsoft reports that 30% of its 1999 net income was generated outside of the United States.

produced at the back of this book. For promotional purposes, companies are happy to mail their annual report to anyone who asks.

Download a copy of the annual report from Microsoft s Web site at **microsoft.com**. On the Web sites of most companies (Microsoft included), the annual report is not easy to find. You have to skirt past games, promotional material, and lots of nonfinancial information, but the annual report is usually there somewhere.

Download a copy of the annual report (and lots of other information) from the U.S. government archives at **sec.gov/edgarhp.htm**. These government filings are pure text documents (no pictures) and are made available through the EDGAR (Electronic Data Gathering, Analysis, and Retrieval) system.

Now that you know how to get your own copy of the Microsoft annual report, make sure you study the rest of this book to learn how to use the report.

## to summarize

The notes to the financial statements contain additional information not included in the financial statements themselves. The notes explain the company s accounting assumptions and practices, provide details of financial statement summary numbers and additional disclosure about complex events, and report supplementary information required by the SEC or the FASB.

## 3

Describe the purpose of an audit report and the incentives the auditor has to perform a good audit.

## THE EXTERNAL AUDIT

Refer back to the opening scenario for this chapter. Following the November 1986 leveraged buyout by **KOHLBERG, KRAVIS, ROBERTS & CO. (KKR)**, **SAFEWAY** decided to again issue shares to the public. In April 1990, Safeway issued shares at a price of $11.25 per share. The $11.25 price implied that the market value of KKR s initial investment had risen from $130 million to $731 million. The $11.25 price was determined by investment bankers and potential investors after examining the financial statements of Safeway. Now, consider the following questions:

Who controlled the preparation of the Safeway financial statements used by investors in arriving at the $11.25 price? The owners and managers of Safeway, led by KKR.

Did KKR have any incentive to bias the reported financial statement numbers? Absolutely. The better the numbers, the higher the stock offering price and the more money raised by KKR.

Since KKR had control of the preparation of the financial statements and stood to benefit substantially if those statements looked overly favorable, how could the financial statements be trusted? Good question.

**audit report** A report issued by an independent CPA that expresses an opinion about whether the financial statements fairly present a company s financial position, operating results, and cash flows in accordance with generally accepted accounting principles.

This situation illustrates a general truth: the owners and managers of a company have an incentive to report the most favorable results possible. Poor reported financial performance can make it harder to get loans, can lower the amount that managers receive as salary bonuses, and can lower the stock price when shares are issued to the public. With these incentives to stretch the truth, the financial statements would not be reliable unless they were reviewed by an external party.

To provide this external review, a company s financial statements are often audited by an independent certified public accountant (CPA). A CPA firm issues an **audit report** that ex-

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Notice that **MICROSOFT** s audit report is dated July 19, 1999. This means that it took less than three weeks (from the end of the fiscal year on June 30) for the completion of the audit. Obviously, much audit work was conducted during the year to make this happen.

presses an opinion about whether the statements fairly present a company s financial position, operating results, and cash flows in accordance with generally accepted accounting principles. Note that the financial statements are the responsibility of a company s management and not of the CPA. Although not all company records have to be audited, audits are needed for many purposes. For example, a banker may not make a loan without first receiving audited financial statements from a prospective borrower. As another example, most securities cannot be sold to the general public until they are registered with the SEC. Audited financial statements are required for this registration process.

Though an audit report does not guarantee accuracy, it does provide added assurance that the financial statements are not misleading since they have been examined by an independent professional. However, the CPA cannot examine every transaction upon which the summary figures in the financial statements are based. The accuracy of the statements must remain the responsibility of the company s management. An example of a typical audit report is found in Appendix A in Microsoft s 1999 annual report. Microsoft s financial statements were audited by **DELOITTE & TOUCHE LLP**, one of the large international audit firms.

One final question: Who hires and pays Deloitte & Touche to do the audit of Microsoft s financial statements? Microsoft does. At first glance, this situation appears to be similar to allowing students in an accounting class to choose and pay the graders of the examinations. However, two economic factors combine to allow us to trust the quality of the audit, even though the auditor was hired by the company being audited:

*Reputation.* Deloitte & Touche, as one of the large accounting firms, has a reputation for doing high-quality audits (as do almost all independent auditors in the United States). It would be very reluctant to risk this reputation by signi ng off on a questionable set of financial statements.

*Lawsuits.* Auditors are sued all the time, even when they conduct a perfect audit. Investors who lose money claim that they lost the money by relying on bogus financial statements that were certified by an external auditor. If even honest auditors get sued, then an auditor who intentionally approves a false set of financial statements is at great risk of losing a big lawsuit.

## to summarize

An audit report is issued by an independent CPA firm attesting to the conformity of a set of financial statements with generally accepted accounting principles. CPA firms have an economic incentive to perform credible audits in order to preserve their reputations and to avoid lawsuits.

## 4 FINANCIAL STATEMENT ANALYSIS

Use financial ratios to identify a company s strengths and weaknesses and to forecast its future performance.

**financial statement analysis** Examining both the relationships among financial statement amounts and the trends in those numbers over time.

Financial statements are prepared so that they can be used. One important use is in analyzing a company s economic health. **Financial statement analysis** involves the examination of both the relationships among financial statement numbers and the trends in those numbers over time. One purpose of financial statement analysis is to use the past performance of a company to predict how it will do in the future. Another purpose of financial statement analysis is to evaluate the performance of a company with an eye toward identifying problem areas. Financial statement analysis is both diagnosis, identifying where a firm has problems, and prognosis, predicting how a firm will perform in the future.

Relationships between financial statement amounts are called **financial ratios**. For example, net income divided by sales is a financial ratio called return on sales. Return on sales tells

**financial ratios** Ratios that show relationships between financial statement amounts.

you how many pennies of profit a company makes on each dollar of sales. The return on sales for **MICROSOFT** is 28.9%, meaning that Microsoft makes $0.289 worth of profit for every dollar of software sold. There are hundreds of different financial ratios, each shedding light on a different aspect of the health of a company. Some of the more common ratios are introduced in the following section. The numbers from the **SAFEWAY** balance sheet (Exhibit 2-3) and income statement (Exhibit 2-6) will be used to illustrate the ratio calculations.

## Debt Ratio

**debt ratio** A measure of leverage, computed by dividing total liabilities by total assets.

Comparing the amount of liabilities to the amount of assets shows the extent to which a company has borrowed money to leverage the owners investments and increase the size of the company. One frequently used measure of leverage is the **debt ratio**, computed as total liabilities divided by total assets. The debt ratio represents the proportion of borrowed funds used to acquire the company s assets. For Safeway, the 1999 debt ratio is computed as follows:

$$\text{Debt Ratio: } \frac{\text{Total Liabilities}}{\text{Total Assets}} = \frac{\$10{,}814.5}{\$14{,}900.3} = 72.6\%$$

In other words, Safeway borrowed 72.6% of the money it needed to buy its assets.

Is 72.6% a good debt ratio, a bad debt ratio, or is it impossible to tell? If you are a banker thinking of lending money to Safeway, you want Safeway to have a low debt ratio; a smaller amount of other liabilities increases your chances of being repaid. If you are a Safeway stockholder, you want a higher debt ratio; you want the company to add borrowed funds to your investment dollars to expand the business. There is some middle ground where the debt ratio is not too high for creditors, nor too low for investors. The general rule of thumb is that debt ratios should be around 50%. However, this general benchmark varies widely from one industry to the next. The 72.6% debt ratio for Safeway is not unusual for a supermarket chain.

## Current Ratio

**current (working capital) ratio** A measure of the liquidity of a business; equal to current assets divided by current liabilities.

An important concern about any company is its *liquidity*. If a firm cannot meet its short-term obligations, it may not live to enjoy the long run. The most commonly used measure of liquidity is the **current** (or **working capital) ratio**, a comparison of the current assets (cash, receivables, and inventory) to the current liabilities. The current ratio is computed by dividing total current assets by total current liabilities. For Safeway, the 1999 current ratio is computed as follows:

$$\text{Current Ratio: } \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{\$3{,}052.1}{\$3{,}582.6} = 0.852$$

Historically, a current ratio below 2.0 suggests the possibility of liquidity problems. However, advances in information technology have enabled companies to be much more effective in minimizing the need to hold cash, inventories, and other current assets. As a result, current ratios for successful companies are frequently less than 1.0. The 0.852 current ratio for Safeway is similar to that for other supermarket chains.

Minimum current ratio requirements are frequently included in loan agreements. A typical agreement might state that if the current ratio falls below a certain level, the lender can declare the loan in default and require immediate repayment. This type of minimum current ratio restriction forces the borrower to maintain its liquidity and gives the lender increased assurance that the loan will be repaid.

## Asset Turnover

**asset turnover** A measure of company efficiency, computed by dividing sales by total assets.

The balance sheet of Safeway reveals total assets of $14,900.3 million at December 28, 1999. Are those assets being used efficiently? The **asset turnover** ratio gives an overall measure of company efficiency and is computed as follows:

$$\text{Asset Turnover: } \frac{\text{Sales}}{\text{Total Assets}} = \frac{\$28{,}859.9}{\$14{,}900.3} = 1.94$$

Safeway s 1999 asset turnover ratio of 1.94 means that for each dollar of assets, Safeway is able to generate $1.94 in sales. The higher the asset turnover ratio, the more efficient the company is at using its assets to generate sales.

## Return on Sales

**return on sales** A measure of the amount of profit earned per dollar of sales, computed by dividing net income by sales.

As mentioned at the beginning of this section, Microsoft makes 28.9 cents of profit on each dollar of sales. This ratio is called **return on sales** and (using Safeway s 1999 numbers) is computed as follows:

$$\text{Return on Sales: } \frac{\text{Net Income}}{\text{Sales}} = \frac{\$970.9}{\$28{,}859.9} = 3.36\%$$

Clearly, the return on sales for Safeway of 3.36 cents per dollar is dramatically below that for Microsoft. As with all ratios, however, the return on sales value for Safeway must be evaluated within the appropriate industry. Return on sales in the supermarket industry is frequently between 1% and 2%; so, the Safeway value is very good indeed. In addition, Safeway s 1999 return on sales of 3.36% represents a small improvement over its 1998 return on sales of 3.29%.

## Return on Equity

**return on equity** A measure of the amount of profit earned per dollar of investment, computed by dividing net income by equity.

What investors really want to know is how much profit they earn for each dollar they invest. This amount, called the **return on equity**, is the overall measure of the performance of a company. Return on equity for Safeway for 1999 is computed as follows:

$$\text{Return on Equity: } \frac{\text{Net Income}}{\text{Owners Equity}} = \frac{\$970.9}{\$4{,}085.8} = 23.8\%$$

Safeway s return on equity of 23.8% means that 23.8 cents of profit was earned for each dollar of stockholder investment in 1999. If your intuition tells you that this seems high, you are right. Good companies typically have return on equity values between 15% and 25%. Safeway had a good year in 1999.

## Price-Earnings Ratio

**price-earnings (PE) ratio** A measure of growth potential, earnings stability, and management capabilities; computed by dividing market price per share by earnings per share.

If a company earned $100 this year, how much should you pay to buy that company? If you expect the company to make more in the future, you would be willing to pay a higher price than if you expected the company to make less. Also, you would probably be willing to pay a bit more for a stable company than for one experiencing wild swings in earnings. The **price-earnings (PE) ratio** measures the relationship between the market value of a company and that company s current earnings. This ratio is computed by dividing the market price per share of stock by the earnings per share. Safeway s PE ratio at the end of 1999 was:

$$\text{PE Ratio: } \frac{\text{Market Price per Share}}{\text{Earnings per Share}} = \frac{\$35.75}{\$1.95} = 18.33$$

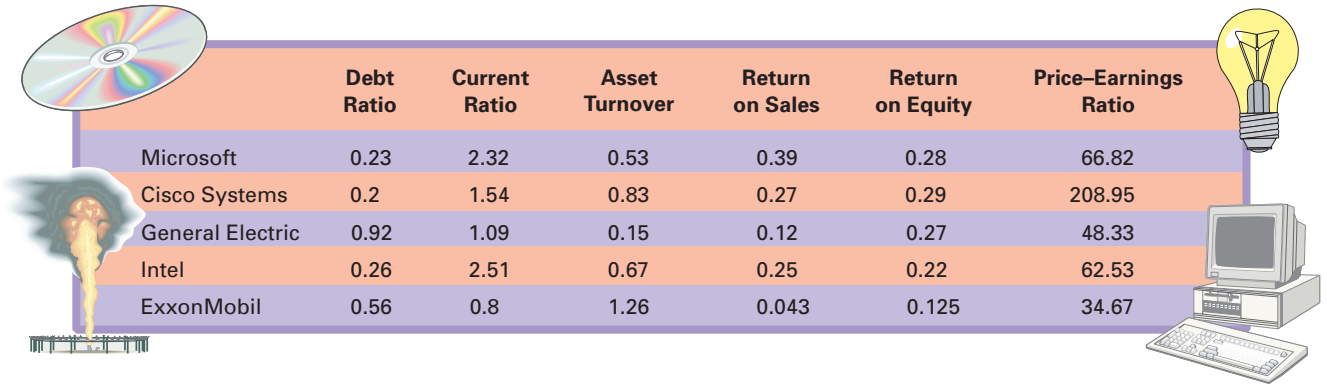
In the United States, PE ratios typically range between 5 and 30. High PE ratios are associated with firms for which strong growth is predicted in the future. Refer back to Exhibits 2-4 and 2-5 and notice that **CISCO SYSTEMS** and **ORACLE** are included in the list of companies with the highest market values but are not among those with high net incomes. The reason Cisco Systems and Oracle are valued so highly is that they are expected to continue to grow rapidly; their current incomes are small compared to what investors are expecting in the future. This expected future growth is reflected in the PE ratios for these companies, which, on August 9, 2000, were 123.6 for Cisco Systems and 39.5 for Oracle.

A summary of the financial ratios discussed in this section is presented in Exhibit 2-12. The values of financial ratios are most meaningful when they are compared with similar values for other companies. A comparison of ratio values for several large U.S. corporations is presented in Exhibit 2-13.

**exhibit 2-12** Summary of Selected Financial Ratios

| | | |
|---|---|---|
| 1. Debt ratio | $\frac{\text{Total liabilities}}{\text{Total assets}}$ | Proportion of borrowed funds used to purchase assets. |
| 2. Current ratio | $\frac{\text{Current assets}}{\text{Current liabilities}}$ | Measure of liquidity; number of times current assets could cover current liabilities. |
| 3. Asset turnover | $\frac{\text{Sales}}{\text{Total assets}}$ | Number of dollars of sales generated by each dollar of assets. |
| 4. Return on sales | $\frac{\text{Net income}}{\text{Sales}}$ | Number of cents earned on each dollar of sales. |
| 5. Return on equity | $\frac{\text{Net income}}{\text{Owners equity}}$ | Number of cents earned on each dollar invested. |
| 6. Price-earnings ratio | $\frac{\text{Market price per share}}{\text{Earnings per share}}$ | Amount investors are willing to pay for each dollar of earnings; indication of growth potential. |

**exhibit 2-13** Selected Ratios for Several Large U.S. Corporations for 1999



| | Debt Ratio | Current Ratio | Asset Turnover | Return on Sales | Return on Equity | Price–Earnings Ratio |
|---|---|---|---|---|---|---|
| Microsoft | 0.23 | 2.32 | 0.53 | 0.39 | 0.28 | 66.82 |
| Cisco Systems | 0.2 | 1.54 | 0.83 | 0.27 | 0.29 | 208.95 |
| General Electric | 0.92 | 1.09 | 0.15 | 0.12 | 0.27 | 48.33 |
| Intel | 0.26 | 2.51 | 0.67 | 0.25 | 0.22 | 62.53 |
| ExxonMobil | 0.56 | 0.8 | 1.26 | 0.043 | 0.125 | 34.67 |

## to summarize

This overview of financial ratios is intended to emphasize that the preparation of the financial statements by the accountant is not the end of the process, but just the beginning. Those financial statements are then analyzed by investors, creditors, and management to detect signs of existing deficiencies in performance and to predict how the firm will perform in the future. Proper interpretation of a ratio depends on comparing a firm s ratio value to the value for the same firm in the previous year, as well as to values for other firms in the same industry.

## 5 FUNDAMENTAL CONCEPTS AND ASSUMPTIONS

Explain the fundamental concepts and assumptions that underlie financial accounting.

Certain fundamental concepts and assumptions underlie financial accounting practice and the resulting financial statements. These ideas are so fundamental to any economic activity that they usually are taken for granted in conducting business. Nevertheless, it is important to be aware of them because these assumptions, together with certain basic concepts and procedures, determine the rules and set the boundaries of accounting practice. They indicate which events will be accounted for and in what manner. In total, they provide the essential characteristics of the traditional **accounting model**.

**accounting model** The basic accounting assumptions, concepts, principles, and procedures that determine the manner of recording, measuring, and reporting a company s transactions.

This section will describe the separate entity concept, the assumption of arm s-length transactions, the cost principle, the monetary measurement concept, and the going concern assumption. The concept of double-entry accounting was already introduced on page 34 as the basis for the accounting equation. As noted, this concept will be explained in much more detail in Chapter 3. Additional concepts and assumptions will be covered in later chapters. Remember that accounting is the language of business, and it takes time to learn a new language. The terms and concepts we introduce here will become much more familiar as your study continues.

### The Separate Entity Concept

**entity** An organizational unit (a person, partnership, or corporation) for which accounting records are kept and about which accounting reports are prepared.

**separate entity concept** The idea that the activities of an entity are to be separated from those of the individual owners.

Because business involves the exchange of goods or services between entities, it follows that accounting records should be kept for those entities. For accounting purposes, an **entity** is defined as the organizational unit for which accounting records are maintained for example, **IBM CORPORATION**. It is a focal point for identifying, measuring, and communicating accounting data. Furthermore, the entity is considered to be *separate* from its individual owners.

We are all engaged in a variety of economic activities. For example, John Scott works for a large corporation, owns some real estate, is president of the local Little League baseball organization, and manages the family estate on behalf of his brothers and sister. The **separate entity concept** is the idea that, when John Scott is called upon to report the financial activities of the local Little League, he must make sure not to include any of his personal or family financial activities in the results. Similarly, the accounting records of a small business must be kept separate from the personal finances of the owner.

Applying the separate entity concept to large corporations can also be difficult. Large corporations, such as **GENERAL ELECTRIC** and IBM, own networks of subsidiaries (and those subsidiaries own subsidiaries) with complex business ties among the members of the group. A key part of the accounting process for such an organization is carefully defining what is part of General Electric and what is not. For example, one difficult accounting issue (covered in advanced accounting courses) is deciding how much of another company General Electric must own (20%? 45%? 51%? 100%?) before that other company is considered part of the General Electric reporting entity.

### The Assumption of Arm s-Length Transactions

**transactions** Exchange of goods or services between entities (whether individuals, businesses, or other organizations), as well as other events having an economic impact on a business.

**arm s-length transactions** Business dealings between independent and rational parties who are looking out for their own interests.

Accounting is based on the recording of economic transactions. Viewed broadly, **transactions** include not only exchanges of economic resources between separate entities, but also events that have an economic impact on a business independently. The borrowing and lending of money and the sale and purchase of goods or services are examples of the former. The loss in value of equipment due to obsolescence or fire is an example of the latter. Collectively, transactions provide the data that are included in accounting records and reports.

Accounting for economic transactions enables us to measure the success of an entity. However, the data for a transaction will not accurately represent that transaction if any bias is involved. Therefore, unless there is evidence to the contrary, accountants assume **arm s-length transactions**. That is, they make the assumption that both parties for example, a buyer and a seller are rational and free to act independently; each trying to make the best deal possible in establishing the terms of the transaction.

To illustrate, assume you are preparing a personal balance sheet and want to list the value of your minivan. You bought the three-year-old minivan for $5,000. Of course, you should list

the minivan on your balance sheet at the $5,000 price you paid for it. That should be a good reflection of the value of the vehicle. But, what if you bought the minivan from your brother (who gave you a good deal) and the real market value of the minivan is $11,000? The problem here is that the $5,000 price negotiated between you and your brother is not a market price. Market prices can be thought of as prices negotiated between two strangers who are both competing to get the best deal possible. Thus, a necessary assumption for financial statements to be informative is that the reported financial results come from arm s-length transactions. Without this assumption, the numbers in the financial statements (like the $5,000 for the minivan you bought from your brother) do not reflect true values.

**historical cost** The dollar amount originally exchanged in an arm s-length transaction; an amount assumed to reflect the fair market value of an item at the transaction date.

**cost principle** The idea that transactions are recorded at their historical costs or exchange prices at the transaction date.

An illustration of the accounting problems that can arise from the lack of arm s-length transactions is provided by the labor problems of major league baseball. The team owners and the players are always arguing about the profitability of the teams. The players do not believe the numbers in the owners financial statements; many important transactions reported are between the baseball teams and other businesses controlled by the owners, such as television stations. Since the revenues received in these deals (between the baseball teams and related businesses) are not from arm s-length transactions, the players question whether the full value of the deals is reflected in the owners financial reports.

**caution**

When reading accounting reports, remember that many reported values are historical costs, reflecting exchange prices at various transaction dates.

## The Cost Principle

To further ensure objective measurements, accountants record transactions at **historical cost**, the amount originally paid or received for goods and services in arm s-length transactions. The historical cost is assumed to represent the fair market value of the item at the date of the transaction because it reflects the actual use of resources by independent parties. In accounting, this convention of recording transactions at cost is often referred to as the **cost principle**.

**monetary measurement** The idea that money, as the common medium of exchange, is the accounting unit of measurement, and that only economic activities measurable in monetary terms are included in the accounting model.

## The Monetary Measurement Concept

Accountants do not record all the activities of economic entities. They record only those that can be measured in monetary terms. Thus, the concept of **monetary measurement** becomes another important characteristic of the accounting model. For example, employee morale cannot be measured directly in monetary terms and is not reported in the accounting records. Wages

Major league baseball salary disputes are frequently in the news. The lack of arm s-length transactions may contribute to some of the friction between players and owners.

paid or owed, however, are quantifiable in terms of money and are reported. In accounting, all transactions are recorded in monetary amounts, whether or not cash is involved. In the United States, the dollar is the unit of exchange and is thus the measuring unit for accounting purposes.

As noted earlier in discussing the limitations of a balance sheet, the listed values may not be the same as actual market values for two reasons. The first is due to the cost principle. Because of such factors as inflation (an increase in the general price level of goods and services), the recorded amount of an item may be quite different from the amount required at a later time to buy or replace the item. The second reason results from the monetary measurement concept. Not all economic assets are recorded, because they are too difficult or impossible to measure in monetary amounts.

## The Going Concern Assumption

**going concern assumption**
The idea that an accounting entity will have a continuing existence for the foreseeable future.

The **SAFEWAY** balance sheet in Exhibit 2-3 was prepared under the assumption that Safeway would continue in business for the foreseeable future. This is called the **going concern assumption**. Without this assumption, preparation of the balance sheet would be much more difficult. For example, the $2.4 billion inventory for Safeway in 1999 is reported at the cost originally paid to purchase the inventory. This is a reasonable figure because, in the normal course of business, Safeway can expect to sell the inventory for this amount, plus some profit. But if it were assumed that Safeway would go out of business tomorrow, the inventory would suddenly be worth a lot less. Imagine the low prices you could get on Safeway merchandise if it had to conduct a one-day, going-out-of-business sale! The going concern assumption allows the accountant to record assets at what they are worth to a company in normal use, rather than what they would sell for in a liquidation sale.

## to summarize

In conducting economic activities, entities enter into transactions that form the basis of accounting records. An accounting model has been developed for recording, measuring, and reporting an entity s transactions. This model is founded on certain fundamental concepts and several important assumptions, principles, and procedures. First, the organizational unit being accounted for is a separate entity. The entity may be small or large, but it is the organizational unit for which accounting records are kept and financial reports prepared. Second, the transactions are assumed to be arm s-length. Third, transactions are recorded at historical cost. Fourth, transactions must be measurable in monetary amounts. Fifth, the accounting entity is assumed to be a going concern.

## review of learning objectives

**1 Understand the basic elements and formats of the three primary financial statements balance sheet, income statement, and statement of cash flows.** The balance sheet provides a summary of the financial position of a company at a particular date. It lists a company s assets, liabilities, and owners equity. Assets and liabilities are usually classified as either current or long-term. For a corporation, owners equity consists of directly invested funds as well as retained earnings.

The income statement shows the major sources of revenues generated and the expenses associated with those revenues. The difference between revenues and expenses is net income or net loss. The income statements of corporations must also include earnings per share.

The statement of cash flows shows the significant cash inflows (receipts) and cash outflows (payments) of a company for a period of time. These cash flows are classified according to operating, investing, and financing activities.

**2 Recognize the need for financial statement notes and identify the types of information included in the notes.** The notes to the financial statements contain additional information not included in the financial statements themselves. The notes explain the company s accounting assumptions and practices, provide details of financial statement summary numbers and additional disclosure about complex events, and report supplementary information required by the SEC and the FASB.

**3 Describe the purpose of an audit report and the incentives the auditor has to perform a good audit.** An audit report is issued by an independent CPA firm attesting to the conformity of a set of financial statements with generally accepted accounting principles. CPA firms have an economic incentive to perform credible audits in order to preserve their reputations and to avoid lawsuits.

**4 Use financial ratios to identify a company s strengths and weaknesses and to forecast its future performance.** Financial statements are analyzed by investors, creditors, and management to detect signs of existing deficiencies in performance and to predict how the firm will perform in the future. Proper interpretation of a financial ratio depends on comparing a firm s ratio value to the value for the same firm in the previous year, as well as to values for other firms in the same industry.

**5 Explain the fundamental concepts and assumptions that underlie financial accounting.** Certain fundamental concepts underlie the practice of accounting. First, a business must be accounted for as an economic entity separate from the personal affairs of the owners and separate from other businesses. Second, the transactions are assumed to be arm s-length, so that the negotiated prices reflect true market values at the dates of the transactions. Third, transactions are recorded at historical cost. Fourth, only those transactions and events that can be measured in monetary terms are reported. Fifth, the accounting entity is assumed to be a going concern.

## key terms and concepts

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audit report 49
balance sheet (statement of financial position) 32
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# review problem

**The Income Statement and the Balance Sheet**

Shirley Baum manages The Copy Shop. She has come to you for help in preparing an income statement and a balance sheet for the year ended December 31, 2003. Several amounts, determined as of December 31, 2003, are presented below. No dividends were paid this year.

| | | | |
|---|---|---|---|
| Capital stock (10,000 shares outstanding) | $ 40,000 | Mortgage payable | $72,000 |
| Retained earnings (12/31/02) | 12,400 | Accounts payable | 6,000 |
| Advertising expense | 2,000 | Land | 24,000 |
| Cash | 17,000 | Supplies | 2,000 |
| Rent expense | 2,400 | Salary expense | 20,000 |
| Building (net) | 100,000 | Revenues | 42,000 |
| Interest expense | 700 | Other expenses | 1,300 |
| | | Accounts receivable | 3,000 |

*Required*

1. Prepare an income statement for the year ended December 31, 2003, including EPS.
2. Determine the amount of retained earnings at December 31, 2003.
3. Prepare a classified balance sheet as of December 31, 2003.
4. Calculate the current ratio for The Copy Shop. What does the current ratio tell you about the company?

**Solution**

**1. Income Statement**

The first step in solving this problem is to separate the balance sheet items from the income statement items. Asset, liability, and owners equity items reflect the company s financial position and appear on the balance sheet; revenues and expenses are reported on the income statement.

| Balance Sheet Items | Income Statement Items |
|---|---|
| Capital stock | Advertising expense |
| Retained earnings | Rent expense |
| Cash | Interest expense |
| Building (net) | Salary expense |
| Mortgage payable | Revenues |
| Accounts payable | Other expenses |
| Land | |
| Supplies | |
| Accounts receivable | |

After the items have been separated, the income statement and the balance sheet may be prepared using a proper format.

**The Copy Shop**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Revenues | | $42,000 |
| *Expenses:* | | |
| Advertising expense | $2,000 | |
| Rent expense | 2,400 | |
| Interest expense | 700 | |
| Salary expense | 20,000 | |
| Other expenses | 1,300 | 26,400 |
| Net income | | $15,600 |

EPS = $15,600 ÷ 10,000 shares = $1.56

**2. Retained Earnings**

The amount of Retained Earnings at December 31, 2003, may be calculated as follows:

| | |
|---|---|
| Retained earnings (12/31/02) | $12,400 |
| Add: Net income for year | 15,600 |
| Subtract: Dividends for year | (0) |
| Retained earnings (12/31/03) | $28,000 |

Since no dividends were paid during 2003, the ending balance in Retained Earnings is simply the beginning balance plus net income for the year.

**3. Balance Sheet**

**The Copy Shop**
**Balance Sheet**
**December 31, 2003**

| Assets | | | Liabilities and Owners Equity | | |
|---|---|---|---|---|---|
| **Current assets:** | | | **Current liabilities:** | | |
| Cash | $ 17,000 | | Accounts payable | $ 6,000 | |
| Accounts receivable | 3,000 | | | | |
| Supplies | 2,000 | $ 22,000 | **Long-term liabilities:** | | |
| | | | Mortgage payable | 72,000 | |
| **Long-term assets:** | | | Total liabilities | | $ 78,000 |
| Land | $ 24,000 | | | | |
| Building (net) | 100,000 | 124,000 | **Owners equity:** | | |
| | | | Capital stock | $40,000 | |
| | | | Retained earnings | 28,000* | 68,000 |
| | | | Total liabilities and | | |
| Total assets | | $146,000 | owners equity | | $146,000 |

*See item 2 for calculation.

**4. Current Ratio**

CR = Current Assets/Current Liabilities
CR = $22,000/$6,000 = 3.67

The current ratio shows the relationship of total current assets to total current liabilities. It indicates whether a company can pay its current obligations with its current assets and therefore helps short-term creditors assess a company s liquidity. The amount of The Copy Shop s current assets is almost four times its current liabilities (3.67:1). In other words, The Copy Shop has $3.67 of current assets for every $1 of current liabilities, which shows a favorable liquidity position.

## discussion questions

1. As an external user of financial statements, perhaps an investor or creditor, what type of accounting information do you need?
2. What is the major purpose of:
   a. A balance sheet?
   b. An income statement?
   c. A statement of cash flows?
3. Assume you want to invest in the stock market, and your friends tell you about a company s stock that is guaranteed to have an annual growth rate of 150 percent. Should you trust your friends and invest immediately, or should you research the company s financial statements before investing? Explain.

4. Why are classified and comparative financial statements generally presented in annual reports to shareholders?
5. Why are owners equity and liabilities considered the sources of assets?
6. Owners equity is not cash; it is not a liability; and it generally is not equal to the current worth of a business. What is the nature of owners equity?
7. What are the limitations of the balance sheet? Why is it important to be aware of them when evaluating a company s growth potential?
8. Some people feel that the income statement is more important than the balance sheet. Do you agree? Why or why not?
9. How might an investor be misled by looking only at the bottom line (the net income or EPS number) on an income statement?
10. Why is it important to classify cash flows according to operating, investing, and financing activities?
11. You are thinking of investing in one of two companies. In one annual report, the auditor s opinion states that the financial statements were prepared in accordance with generally accepted accounting principles. The other makes no such claim. How important is that to you? Explain.
12. Some people think that auditors are responsible for ensuring the accuracy of financial statements. Are they correct? Why or why not?
13. What are the four general types of financial statement notes typically included in annual reports to stockholders?
14. What are the primary purposes of financial statement analysis?
15. Indicate how each of the following financial ratios is computed and describe what the ratio is attempting to explain:
    a. Debt ratio
    b. Current ratio
    c. Asset turnover
    d. Return on sales
    e. Return on equity
    f. Price-earnings ratio
16. Explain why each of the following is important in accounting:
    a. The separate entity concept
    b. The assumption of arm s-length transactions
    c. The cost principle
    d. The monetary measurement concept
    e. The going concern assumption

## discussion cases

### CASE 2-1

#### CREDITOR AND INVESTOR INFORMATION NEEDS

Ink Spot is a small company that has been in business for two years. Wilford Smith, the president of the company, has decided that it is time to expand. He needs $10,000 to purchase additional equipment and to pay for increased operating expenses. Wilford can either apply for a loan at First City Bank, or he can issue more stock (1,000 shares are outstanding) to new investors. Assuming that you are the loan officer at First City Bank, what information would you request from Ink Spot before deciding whether to make the loan? As a potential investor in Ink Spot, what information would you need to make a good investment decision? What financial ratios might you consider as a potential lender or investor before making a decision?

### CASE 2-2

#### ANALYZING TRENDS AND KEY FINANCIAL RELATIONSHIPS

An investor may choose from several investment opportunities: the stocks of different companies; rental property or other real estate; or savings accounts, money market certificates, and similar financial instruments. When considering an investment in the stock of a particular company, comparative financial data presented in the annual report to stockholders helps an investor identify key relationships and trends. As an illustration, comparative operating results for Prime Properties, Inc., from its 2003 annual report are provided. (Dollars are presented in thousands except for earnings per share.)

| | Year Ended December 31 | | |
|---|---|---|---|
| | 2003 | 2002 | 2001 |
| **Revenues:** | | | |
| Property management fees | $ 58,742 | $ 63,902 | $ 66,204 |
| Appraisal fees | 55,641 | 60,945 | 62,320 |
| Total revenues | $114,383 | $124,847 | $128,524 |
| **Expenses:** | | | |
| Selling and advertising | $ 64,371 | $ 75,403 | $ 80,478 |
| Administrative expenses | 30,671 | 31,115 | 31,618 |
| Other expenses | 9,265 | 9,540 | 9,446 |
| Interest expense | 2,047 | 1,468 | 26 |
| Total expenses | $106,354 | $117,526 | $121,568 |
| Income before taxes | $ 8,029 | $ 7,321 | $ 6,956 |
| Income taxes | 2,409 | 2,196 | 2,087 |
| Net income | $ 5,620 | $ 5,125 | $ 4,869 |
| *Earnings per share | $2.25 | $2.05 | $1.95 |

*2.5 million shares outstanding

What trends are indicated by the comparative income statement data for Prime Properties, Inc.? Which of these trends would be of concern to a potential investor? What additional information would an investor need in order to make a decision about whether to invest in this company?

## CASE 2-3 ACCOUNTING FOR THE PROPER ENTITY

You have been hired to prepare the financial reports for White River Building Supply, a proprietorship owned by Bill Masters. Upon encountering several payments made from the company bank account to a nearby university, you contact Bill Masters to find out how to classify these payments. Masters explains that those checks were written to pay his daughter s tuition and to purchase her textbooks and miscellaneous supplies. He then tells you to include the payments with other expenses of the business. This way, he explains, I can deduct the payments on my tax return. Why not, since it all comes out of the same pocket? How would you respond to Masters?

# exercises

## EXERCISE 2-1 CLASSIFICATION OF FINANCIAL STATEMENT ELEMENTS

Indicate for each of the following items whether it would appear on a balance sheet (BS) or an income statement (IS). If a balance sheet item, is it an asset (A), a liability (L), or an owners equity item (OE)?

1. Accounts Payable
2. Sales Revenue
3. Accounts Receivable
4. Advertising Expense
5. Cash
6. Supplies
7. Consulting Revenue
8. Land
9. Capital Stock
10. Rent Expense
11. Equipment
12. Interest Receivable
13. Mortgage Payable
14. Notes Payable
15. Buildings
16. Salaries & Wages Expense
17. Retained Earnings
18. Utilities Expense

## EXERCISE 2-2

### ACCOUNTING EQUATION

Compute the missing amounts for companies A, B, and C.

| | A | B | C |
|---|---|---|---|
| Cash | $25,000 | $ 9,000 | $12,000 |
| Accounts receivable | 20,000 | 15,000 | 7,000 |
| Land and buildings | 50,000 | ? | 40,000 |
| Accounts payable | ? | 6,000 | 14,000 |
| Mortgage payable | 30,000 | 10,000 | 15,000 |
| Owners equity | 55,000 | 30,000 | ? |

## EXERCISE 2-3

### COMPREHENSIVE ACCOUNTING EQUATION

Assuming no additional investments by or distributions to owners, compute the missing amounts for companies X, Y, and Z.

| | X | Y | Z |
|---|---|---|---|
| Assets: January 1, 2003 | $360 | $ ? | $230 |
| Liabilities: January 1, 2003 | 280 | 460 | ? |
| Owners equity: January 1, 2003 | ? | 620 | 150 |
| Assets: December 31, 2003 | 380 | ? | 310 |
| Liabilities: December 31, 2003 | ? | 520 | 90 |
| Owners equity: December 31, 2003 | ? | 720 | ? |
| Revenues in 2003 | 80 | ? | 400 |
| Expenses in 2003 | 100 | 116 | ? |

## EXERCISE 2-4

### COMPUTING ELEMENTS OF OWNERS EQUITY

From the information provided, determine:

1. The amount of retained earnings at December 31.
2. The amount of revenues for the period.

| Totals | January 1 | December 31 |
|---|---|---|
| Current assets | $ 5,000 | $ 10,000 |
| All other assets | 150,000 | 160,000 |
| Liabilities | 25,000 | 30,000 |
| Capital stock | 50,000 | ? |
| Retained earnings | 80,000 | ? |

*Additional data:*

Expenses for the period were $35,000.

Dividends paid were $7,500.

Capital stock increased by $5,000 during the period.

## EXERCISE 2-5

### BALANCE SHEET RELATIONSHIPS

Correct the following balance sheet.

**Canfield Corporation**
**Balance Sheet**
**December 31, 2003**

| Assets | | Liabilities and Owners Equity | |
|---|---|---|---|
| Cash | $ 55,000 | Buildings | $325,000 |
| Accounts payable | 65,000 | Accounts receivable | 75,000 |
| Interest receivable | 20,000 | Mortgage payable | 150,000 |
| Capital stock | 200,000 | Sales revenue | 350,000 |
| Rent expense | 60,000 | Equipment | 85,000 |
| Retained earnings | 145,000 | Utilities expense | 5,000 |
| | | Total liabilities and | |
| Total assets | $545,000 | owners equity | $990,000 |

## EXERCISE 2-6 BALANCE SHEET PREPARATION

From the following data, prepare a classified balance sheet for Low Price Company at December 31, 2003.

| | |
|---|---|
| Accounts payable | $ 46,500 |
| Accounts receivable | 99,000 |
| Buildings | 325,500 |
| Owners equity, 1/1/03 | 150,000 |
| Cash | 116,250 |
| Distributions to owners during 2003 | 18,750 |
| Supplies | 2,250 |
| Land | 165,000 |
| Mortgage payable | 412,500 |
| Net income for 2003 | 117,750 |
| Owners equity, 12/31/03 | ? |

## EXERCISE 2-7 INCOME STATEMENT COMPUTATIONS

Following are the operating data for an advertising firm for the year ended December 31, 2003.

| | |
|---|---|
| Revenues | $175,000 |
| Supplies expense | 45,000 |
| Salaries expense | 70,000 |
| Rent expense | 1,500 |
| Administrative expense | 6,000 |
| Income taxes (30% of income before taxes) | ? |

For 2003, determine:

1. Income before taxes.
2. Income taxes.
3. Net income.
4. Earnings per share (EPS), assuming there are 15,000 shares of stock outstanding.

## EXERCISE 2-8 INCOME STATEMENT PREPARATION

The following selected information is taken from the records of Sel Tec Corporation.

| | |
|---|---|
| Accounts payable | $ 25,000 |
| Accounts receivable | 49,000 |
| Advertising expense | 7,500 |
| Cash | 15,500 |
| Supplies expense | 23,000 |

*(continued)*

| | |
|---|---|
| Rent expense | $ 5,000 |
| Utilities expense | 1,500 |
| Income taxes (30% of income before taxes) | ? |
| Miscellaneous expense | 2,200 |
| Owners equity | 125,000 |
| Salaries expense | 88,000 |
| Fees (revenues) | 242,000 |

1. Prepare an income statement for the year ended December 31, 2003. (Assume that 5,000 shares of stock are outstanding.)
2. Explain what the EPS ratio tells the reader about Sel Tec Corporation.

## EXERCISE 2-9 CASH FLOW COMPUTATIONS

From the following selected data, compute:

1. Net cash flow provided (used) by operating activities.
2. Net cash flow provided (used) by investing activities.
3. Net cash flow provided (used) by financing activities.
4. Net increase (decrease) in cash during the year.
5. The cash balance at the end of the year.

| | |
|---|---|
| Cash receipts from: | |
| Customers | $270,000 |
| Investments by owners | 54,000 |
| Sale of building | 90,000 |
| Proceeds from bank loan | 60,000 |
| Cash payments for: | |
| Wages | $ 82,000 |
| Utilities | 3,000 |
| Advertising | 4,000 |
| Rent | 36,000 |
| Taxes | 67,000 |
| Dividends | 20,000 |
| Repayment of principal on loan | 40,000 |
| Purchase of land | 106,000 |
| Cash balance at beginning of year | $386,000 |

## EXERCISE 2-10 INCOME AND RETAINED EARNINGS RELATIONSHIPS

Assume that retained earnings increased by $240,000 from December 31, 2002, to December 31, 2003, for Miller Corporation. During the year, a cash dividend of $140,000 was paid.

1. Compute the net income for the year.
2. Assume that the revenues for the year were $920,000. Compute the expenses incurred for the year.

## EXERCISE 2-11 RETAINED EARNINGS COMPUTATIONS

During 2003, Safe Lite Corporation had revenues of $180,000 and expenses, including income taxes, of $100,000. On December 31, 2002, Safe Lite had assets of $400,000, liabilities of $100,000, and capital stock of $250,000. Safe Lite paid a cash dividend of $40,000 in 2003. No additional stock was issued. Compute the retained earnings on December 31, 2002, and 2003.

## EXERCISE 2-12 PREPARATION OF INCOME STATEMENT AND RETAINED EARNINGS STATEMENT

Prepare an income statement and a statement of retained earnings for Big Sky Corporation for the year ended June 30, 2003, based on the following information:

| | | |
|---|---|---|
| Capital stock (1,500 shares @ $100) | | $150,000 |
| Retained earnings, July 1, 2002 | | 76,800 |
| Dividends | | 6,500 |
| Ski rental revenue | | 77,900 |
| Expenses: | | |
| Rent expense | $ 6,000 | |
| Salaries expense | 38,600 | |
| Utilities expense | 2,400 | |
| Advertising expense | 7,500 | |
| Miscellaneous expense | 7,700 | |
| Income taxes | 2,100 | 64,300 |

## EXERCISE 2-13 ARTICULATION: RELATIONSHIPS BETWEEN A BALANCE SHEET AND AN INCOME STATEMENT

The total assets and liabilities of Roloflex Company at January 1 and December 31, 2003, are presented below.

| | January 1 | December 31 |
|---|---|---|
| Assets | $76,000 | $112,000 |
| Liabilities | 26,000 | 28,800 |

Determine the amount of net income or loss for 2003, applying each of the following assumptions concerning the additional issuance of stock and dividends paid by the firm. Each case is independent of the others.

1. Dividends of $10,800 were paid and no additional stock was issued during the year.
2. Additional stock of $4,800 was issued and no dividends were paid during the year.
3. Additional stock of $62,000 was issued and dividends of $15,600 were paid during the year.

## EXERCISE 2-14 CASH FLOW CLASSIFICATIONS

For each of the following items, indicate whether it would be classified and reported under the Operating Activities (OA), Investing Activities (IA), or Financing Activities (FA) section of a statement of cash flows:

a. Cash receipts from selling merchandise
b. Cash payments for wages and salaries
c. Cash proceeds from sale of stock
d. Cash purchase of equipment
e. Cash dividends paid
f. Cash received from bank loan
g. Cash payments for inventory
h. Cash receipts from services rendered
i. Cash payments for taxes
j. Cash proceeds from sale of property no longer needed as expansion site

## EXERCISE 2-15 CURRENT RATIO

Using the data in Exercise 2-6, compute the current ratio for Low Price Company. What does the current ratio show?

## EXERCISE 2-16 DEBT RATIO

Using the data in Exercise 2-6, compute the debt ratio for Low Price Company. What does the debt ratio explain?

## EXERCISE 2-17 RETURN ON EQUITY AND PRICE-EARNINGS RATIO

Using the data in Exercise 2-6, and assuming 20,000 shares of stock outstanding and a market price per share of $36.00, compute the return on equity and PE ratios for Low Price Company. Does the PE ratio seem reasonable relative to other U.S. stocks?

## EXERCISE 2-18 NOTES TO FINANCIAL STATEMENTS

Refer to **MICROSOFT** s annual report in Appendix A at the end of the book. How important are the notes to financial statements? What are the major types of notes that Microsoft includes in its annual report?

## EXERCISE 2-19 THE COST PRINCIPLE

On January 1, 2003, Save-More Construction Company paid $150,000 in cash for a parcel of land to be used as the site of a new office building. During March, the company petitioned the city council to rezone the area for professional office buildings. The city council refused, preferring to maintain the area as a residential zone. After nine months of negotiation, Save-More Construction convinced the council to rezone the property for commercial use, thus raising its value to $200,000.

For accounting purposes, what value should be used to record the transaction on January 1, 2003? At what value would the property be reported at year-end, after the city council rezoning? Explain why accountants use historical costs to record transactions.

## EXERCISE 2-20 THE MONETARY MEASUREMENT CONCEPT

Many successful companies, such as **FORD MOTOR COMPANY**, **EXXONMOBIL**, and **MARRIOTT CORPORATION**, readily acknowledge the importance and value of their employees. In fact, the employees of a company are often viewed as the most valued asset of the company. Yet in the asset section of the balance sheets of these companies there is no mention of the asset Employees. What is the reason for this oversight and apparent inconsistency?

## EXERCISE 2-21 THE GOING CONCERN ASSUMPTION

Assume that you open an auto repair business. You purchase a building and buy new equipment. What difference does the going concern assumption make with regard to how you would account for these assets?

# problems

## PROBLEM 2-1 BALANCE SHEET CLASSIFICATIONS AND RELATIONSHIPS

Tu aa Corporation has the following balance sheet elements as of December 31, 2003.

| | | | |
|---|---|---|---|
| Land | $ 69,000 | Mortgage payable | $300,000 |
| Cash | ? | Capital stock | 135,000 |
| Building | 178,000 | Retained earnings | 88,000 |
| Accounts payable | 100,000 | Supplies | 17,000 |
| Notes payable (short-term) | 105,000 | Accounts receivable | 88,000 |
| Equipment | 350,000 | | |

*Required:* Compute the total amount of:

1. Current assets.
2. Long-term assets.
3. Current liabilities.
4. Long-term liabilities.
5. Stockholders equity

## PROBLEM 2-2 PREPARATION OF A CLASSIFIED BALANCE SHEET

Following are the December 31, 2003, account balances for Siraco Company.

| | |
|---|---|
| Cash | $ 1,950 |
| Accounts receivable | 2,500 |
| Supplies | 1,800 |
| Equipment | 11,275 |
| Accounts payable | 3,450 |
| Wages payable | 250 |
| Dividends paid | 1,500 |
| Capital stock | 775 |
| Retained earnings, January 1, 2003 | 12,000 |
| Revenues | 10,000 |
| Miscellaneous expense | 1,550 |
| Supplies expense | 3,700 |
| Wages expense | 2,200 |

*Required:*

1. Prepare a classified balance sheet as of December 31, 2003.
2. **Interpretive Question:** On the basis of its 2003 earnings, was this company s decision to pay dividends of $1,500 a sound one?

## PROBLEM 2-3 BALANCE SHEET PREPARATION WITH A MISSING ELEMENT

The following data are available for Sunshine Products Inc., as of December 31, 2003.

| | |
|---|---|
| Cash | $10,000 |
| Accounts payable | 14,000 |
| Capital stock | 35,200 |
| Accounts receivable | 20,000 |
| Building | 28,000 |
| Supplies | 1,200 |
| Retained earnings | ? |
| Land | 10,000 |

*Required:*

1. Prepare a balance sheet for Sunshine Products Inc.
2. Determine the amount of retained earnings at December 31, 2003.
3. **Interpretive Question:** In what way is a balance sheet a depiction of the basic accounting equation?

## PROBLEM 2-4 INCOME STATEMENT PREPARATION

Listed below are the results of Rulon Candies operations for 2002 and 2003. (Assume 4,000 shares of outstanding stock for both years.)

| | 2003 | 2002 |
|---|---|---|
| Sales | $300,000 | $350,000 |
| Utilities expenses | 15,000 | 8,500 |
| Employee salaries | 115,000 | 110,000 |
| Advertising expenses | 10,000 | 20,000 |
| Income tax expense | 9,000 | 36,500 |
| Interest expense | 25,000 | 15,000 |
| Cost of goods sold | 115,000 | 85,000 |
| Interest revenue | 10,000 | 10,000 |

*Required:*

1. Prepare a comparative income statement for Rulon Candies, Inc., for the years ended December 31, 2003 and 2002. Be sure to include figures for gross margin, operating income, income before taxes, net income, and earnings per share.
2. **Interpretive Question:** What advice would you give Rulon Candies, Inc., to improve its profitability for the year 2004?

## PROBLEM 2-5

### INCOME STATEMENT PREPARATION

The following information is taken from the records of Hill, Dunn, & Associates for the year ended December 31, 2003.

| | |
|---|---|
| Income taxes | $ 10,800 |
| Service revenues | 150,000 |
| Rent expense | 5,500 |
| Salaries expense | 35,000 |
| Miscellaneous expense | 380 |
| Utilities expense | 1,230 |
| Administrative expense | 12,300 |

*Required:* Prepare an income statement for Hill, Dunn, & Associates for the year ended December 31, 2003. (Assume that 4,000 shares of stock are outstanding.)

## PROBLEM 2-6

### EXPANDED ACCOUNTING EQUATION

At the end of 2003, Morgan Systems, Inc., had a fire that destroyed the majority of its accounting records. Morgan Systems, Inc., was able to gather the following financial information for 2003.

a. Retained earnings was changed only as a result of net income and a $50,000 dividend payment to Morgan s investors.
b. All other account changes for the year are listed below. The amount of change for each account is shown as a net increase or decrease.

| | Increase or (Decrease) |
|---|---|
| Cash | $ 25,000 |
| Interest receivable | (15,000) |
| Inventory | 100,000 |
| Accounts receivable | (22,500) |
| Building | 315,000 |
| Accounts payable | 45,000 |
| Mortgage payable | 275,000 |
| Wages payable | (27,250) |
| Capital stock | 52,500 |

*Required:* Using the accounting equation, compute Morgan s net income for 2003.

## PROBLEM 2-7

### INCOME STATEMENT PREPARATION

Precision Corporation has been a leading supplier of magnetic storage disks for three years. Following are the results of Precision s operations for 2003.

| | |
|---|---|
| Sales revenue | $68,000 |
| Advertising expense | 1,530 |
| Income taxes | 4,360 |
| Delivery expense | 480 |
| Packaging expense | 355 |
| Salaries expense | 18,350 |
| Supplies expense | 8,410 |

EPS = $3.45

*Required:*
1. Prepare an income statement for the year ended December 31, 2003.
2. How many shares of stock were outstanding?

## PROBLEM 2-8

### STATEMENT OF CASH FLOWS

Southwestern Rentals, Inc., rents equipment to customers ranging from homeowners to large construction companies. The financial information shown below was gathered from its accounting records for 2003. Assume any increase or decrease in the balances from 1/1/03 to 12/31/03 resulted from either receiving or paying cash in the transaction. For example, during 2003 the balance on loans for land holdings increased $150,000 because the company received $150,000 in cash by taking out an additional loan on the land.

| Items | Balance as of 1/1/03 | Balance as of 12/31/03 |
|---|---|---|
| Cash | $ 20,000 | $ 50,000 |
| Cash receipts from customers | | 600,000 |
| Loans on land holdings | 100,000 | 250,000 |
| Cash distributions to owners | | 150,000 |
| Loan on building | 100,000 | 70,000 |
| Investments in securities | 850,000 | 1,050,000 |
| Cash payments for other expenses | | 50,000 |
| Cash payments for taxes | | 55,000 |
| Cash payments for operating expenses | | 135,000 |
| Cash payments for wages and salaries | | 100,000 |

*Required:*

1. Prepare a statement of cash flows for Southwestern Rentals, Inc., for the year ended December 31, 2003.
2. **Interpretive Question:** Does Southwestern Rentals, Inc., appear to be in good shape from a cash flow standpoint? What other information would help you analyze the situation?

## PROBLEM 2-9

### STATEMENT OF CASH FLOWS

The cash account for Kwon Enterprises shows the following for the year ended December 31, 2003.

| | |
|---|---|
| Beginning cash balance | $ ? |
| Cash receipts during year from: | |
| Services | 1,351,000 |
| Investments by owners | 82,000 |
| Sale of land | 135,000 |
| Cash payments during year for: | |
| Operating expenses | 963,000 |
| Taxes | 114,000 |
| Purchase of building | 326,000 |
| Distributions to owners | 55,000 |
| Ending cash balance | 850,000 |

*Required:* Prepare a statement of cash flows for Kwon Enterprises for the year ended December 31, 2003.

## PROBLEM 2-10

### UNIFYING CONCEPTS: NET INCOME AND FINANCIAL RATIO ANALYSIS

A summary of the operations of Streuling Company for the year ended May 31, 2003, is shown below.

| | |
|---|---|
| Advertising expense | $ 2,760 |
| Supplies expense | 37,820 |
| Rent expense | 1,500 |
| Salaries expense | 18,150 |
| Miscellaneous expense | 4,170 |

*(continued)*

| | |
|---|---|
| Dividends | $ 12,400 |
| Retained earnings (6/1/02) | 156,540 |
| Income taxes | 21,180 |
| Consulting fees (revenues) | 115,100 |
| Administrative expense | 7,250 |

*Required:*

1. Determine the net income for the year by preparing an income statement. (Assume that 3,000 shares of stock are outstanding.)
2. Compute the return on equity (ROE) for Streuling Company, assuming total owners equity is $255,000.
3. **Interpretive Question:** What does the ROE ratio explain about Streuling s profitability?
4. **Interpretive Question:** Assuming an operating loss for the year, is it a good idea for Streuling to still pay its shareholders dividends?

## PROBLEM 2-11

### UNIFYING CONCEPTS: NET INCOME AND STATEMENT OF RETAINED EARNINGS

A summary of the operations of Stellenbach Company for the year ended May 31, 2003, is shown below.

| | |
|---|---|
| Advertising expense | $ 2,760 |
| Supplies expense | 37,820 |
| Rent expense | 1,500 |
| Salaries expense | 18,150 |
| Miscellaneous expense | 4,170 |
| Dividends | 12,400 |
| Retained earnings (6/1/02) | 156,540 |
| Income taxes | 21,180 |
| Consulting fees (revenues) | 115,100 |
| Administrative expense | 7,250 |

*Required:*

1. Determine the net income for the year by preparing an income statement. (There are 2,000 shares of stock outstanding.)
2. Prepare a statement of retained earnings for the year ended May 31, 2003.
3. Prepare a statement of retained earnings assuming that Stellenbach had a net loss for the year of $25,000.
4. **Interpretive Question:** Assuming a loss as in (3), is it a good idea for Stellenbach to still pay its shareholders dividends?

## PROBLEM 2-12

### FINANCIAL RATIOS

The following information for High Flying Company is provided.

| High Flying Company | |
|---|---|
| Current assets | $ 145,000 |
| Long-term assets | 750,000 |
| Current liabilities | 75,000 |
| Long-term liabilities | 300,000 |
| Owners equity | 520,000 |
| Sales for year | 1,425,000 |
| Net income for year | 105,000 |
| Average market price per share | 145.00 |
| Average number of shares outstanding | 10,000 |

*Required:*

1. Compute the current ratio, debt ratio, return on sales, return on equity, asset turnover, and price-earnings ratio.
2. **Interpretive Question:** What do these ratios show for High Flying Company?

## PROBLEM 2-13

### COMPREHENSIVE FINANCIAL STATEMENT PREPARATION

The following information was obtained from the records of Uptown, Inc., as of December 31, 2003.

| | |
|---|---|
| Land | $ 37,500 |
| Buildings | 145,050 |
| Salaries expense | 40,050 |
| Utilities expense | 9,750 |
| Accounts payable | 25,650 |
| Revenues | 397,800 |
| Supplies | 69,450 |
| Retained earnings (1/1/03) | 272,550 |
| Capital stock (1,000 shares outstanding) | 45,000 |
| Accounts receivable | 46,500 |
| Supplies expense | 207,900 |
| Cash | ? |
| Notes payable (long-term) | 25,800 |
| Rent expense | 25,650 |
| Dividends in 2003 | 60,750 |
| Other expenses | 13,050 |
| Income taxes | 52,800 |

*Required:*

1. Prepare an income statement for the year ended December 31, 2003.
2. Prepare a classified balance sheet as of December 31, 2003.
3. Compute the current ratio as of December 31, 2003.
4. Compute the debt ratio as of December 31, 2003.
5. **Interpretive Question:** What does the current ratio tell about Uptown s liquidity?
6. **Interpretive Question:** What does the debt ratio tell about Uptown s leverage?
7. **Interpretive Question:** Why is the balance in Retained Earnings so large as compared with the balance in Capital Stock?

## PROBLEM 2-14

### ELEMENTS OF COMPARATIVE FINANCIAL STATEMENTS

The following report is supplied by Smith Brothers Company.

**Smith Brothers Company**
**Comparative Balance Sheets**
**As of December 31, 2003 and 2002**

| Assets | 2003 | 2002 | Liabilities and Owners Equity | 2003 | 2002 |
|---|---|---|---|---|---|
| Cash | $13,000 | $15,000 | Accounts payable | $ 5,000 | $ 4,000 |
| Accounts receivable | 18,000 | 11,000 | Salaries and commissions payable | 8,000 | 8,000 |
| Notes receivable | 11,000 | 10,000 | Notes payable | 25,000 | 27,000 |
| Land | 38,000 | 38,000 | Capital stock | 20,000 | 20,000 |
| | | | Retained earnings | 22,000 | 15,000 |
| Total assets | $80,000 | $74,000 | Total liabilities and owners equity | $80,000 | $74,000 |

Operating expenses for the year included utilities of $4,500, salaries and commissions of $44,800, and miscellaneous expenses of $1,500. Income taxes for the year were $3,000, and the company paid dividends of $5,000.

*Required:*

1. Compute the total expenses, including taxes, incurred in 2003.
2. Compute the net income or net loss for 2003.
3. Compute the total revenue for 2003.
4. **Interpretive Question:** Why are comparative financial statements generally of more value to users than statements for a single period?

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***Analyzing 2-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** is included in Appendix A. Locate that annual report and answer the following questions:

1. Locate Microsoft s 1999 balance sheet. What percentage of its total assets consists of cash and short-term investments? Compute Microsoft s current ratio. How does its current ratio compare to yours? How much long-term debt does Microsoft have?
2. Find Microsoft s 1999 income statement. Have revenues increased or decreased over the last three years? Is the rate of increase rising? Compute Microsoft s return on sales. Is it increasing?
3. Compute Microsoft s return on equity. How does that return compare to the rate of return you might earn if you were to invest your money in a savings account at a local bank?
4. Review Microsoft s statement of cash flows. What activity generates most of Microsoft s cash? What is Microsoft doing with all its money buying back its own stock, investing in other companies, or something else?

***Analyzing 2-2 (Safeway)***

At the start of this chapter you learned a little about **SAFEWAY** and its history. Now let s take a look at the company s financial performance in recent years. Refer back to Safeway s income statement (on page 41) and balance sheet (on page 38).

Based on information contained in these financial statements, answer the following questions:

1. Compute Safeway s debt ratio for the past two years. Has this ratio increased or decreased? Why?
2. Compute the company s current ratio. Do you notice anything unusual about Safeway s current ratio? How can a company stay in business with a current ratio this low?
3. Compute Safeway s return on sales for 1999. Does the size of this number surprise you? Now compute the company s asset turnover. Considering return on sales and asset turnover together, what does the result indicate?

## INTERNATIONAL CASE

***Diageo***

**DIAGEO** is a United Kingdom (UK) consumer products firm, best known in the United States for the following brand names: Smirnoff, Johnnie Walker, J&B, Gordon s, Guinness, Pillsbury, H agen-Dazs, and Burger King. Diageo s 1998 balance sheet is shown below.

**Diageo**
**Consolidated Balance Sheet**
**30 June 1998**
**(in millions of pounds)**

| | | |
|---|---|---|
| **Fixed assets** | | |
| Intangible assets | | 4,727 |
| Tangible assets | | 3,006 |
| Investments | | 1,244 |
| | | 8,977 |
| **Current assets** | | |
| Stocks | 2,236 | |
| Debtors due within one year | 2,037 | |
| Debtors due after more than one year | 999 | |
| Debtors subject to financing arrangements (franchisee loans of £145 million, less non-returnable proceeds of £127 million) | 18 | |
| Investments | 484 | |
| Cash at bank and in hand | 2,503 | |
| | 8,277 | |
| **Creditors** due within one year | | |
| Borrowings | (4,724) | |
| Other creditors | (3,524) | |
| | (8,248) | |
| **Net current assets** | | 29 |
| **Total assets less current liabilities** | | 9,006 |
| **Creditors** due after more than one year | | |
| Borrowings | (2,894) | |
| Other creditors | (243) | |
| | | (3,137) |
| **Provisions for liabilities and charges** | | (705) |
| | | 5,164 |
| **Shareholders funds** | | |
| Equity share capital | | 1,034 |
| Non-equity share capital | | 105 |
| Called-up share capital | | 1,139 |
| Share premium account | 1,121 | |
| Revaluation reserve | 190 | |
| Profit and loss account | 2,179 | |
| Reserves attributable to equity shareholders | | 3,490 |
| | | 4,629 |
| **Minority interests** | | |
| Equity | 169 | |
| Non-equity | 366 | |
| | | 535 |
| | | 5,164 |

1. Can you identify any major differences between Microsoft s and Diageo s balance sheets in terms of the order in which major categories are displayed?
2. What is Diageo s total assets? Is it as easy to determine as Microsoft s total assets?
3. Take a look at the following list of accounts and identify, given your knowledge of assets, liabilities, and owners equity, what the American equivalent of those accounts might be (you might want to reference Microsoft s balance sheet for comparison):

   Stocks
   Debtors
   Called-up share capital
   Profit and loss account

## ETHICS CASE

***Violating a Covenant***

Often banks will require a company that borrows money to agree to certain restrictions on its activities in order to protect the lending institution. These restrictions are called debt covenants. An example of a common debt covenant is requiring a company to maintain its current ratio at a certain level, say, 2.0.

Your boss has just come to you and asked, How can you make our current ratio higher? You know that the company has a line of credit with a local bank that requires the company to maintain its current ratio at 1.5. You also know that the company was dangerously close to violating this covenant during the previous quarter. The end of the fiscal period is next week, and some action must be taken to increase the current ratio. If the covenant is violated, the lending agreement allows the bank to significantly modify the terms of the debt (in the bank s favor) and also gives the bank a seat on the company s board of directors. Management would prefer not to have the bank involved in the day-to-day affairs of the business, nor do they want to alter the terms of the lending agreement.

Identify ways in which the current ratio can be increased. Would any of the alternatives you identify be good for the business, e.g., selling equipment might raise the current ratio but would that be good for the business? Should a company engage in these types of transactions?

## WRITING ASSIGNMENT

***The Most Important Financial Statement***

As you have discovered, there are three primary financial statements balance sheet, income statement, and statement of cash flows. In no more than two pages, answer the following question: If you could have access to only one of the primary financial statements, which would it be and why? As you provide support for the financial statement of your choice, also provide reasons as to why you would not pick the other two statements.

## THE DEBATE

***Save the Notes***

As pointed out in the chapter, **IBM** s annual report in 1920 included zero pages of notes to the financial statements. In 1996, the notes had grown to 26 pages. While the number of financial statements has remained constant, the number of notes to the financial statements continues to grow.

Divide your group into two teams and prepare two-minute presentations representing the following points of view.

The first team represents Kill the Notes. You are to take the position that financial statements providing information relating to a firm s current asset and liability position, a summary of its operations, and its cash inflows and outflows are all that is needed to make good resource allocation decisions. The three primary financial statements are all that need to be provided to current and potential investors and creditors. In other words, the notes do not add value to the financial reports.

The other team represents Save the Notes. You are to argue that the notes represent essential information that must be used when interpreting the data contained in the financial statements themselves.

## CUMULATIVE SPREADSHEET PROJECT

Starting with this chapter, each chapter in this text will include a spreadsheet assignment based on the financial information of a fictitious company named Handyman. The first assignments are simple in this chapter you are asked to do little more than set up financial statement formats and input some numbers. In succeeding chapters, the spreadsheets will get more complex so that by the end of the course you will have constructed a spreadsheet that allows you to forecast operating cash flow for five years in the future and adjust your forecast depending on the operating parameters that you think are most reasonable.

So, let s get started with the first spreadsheet assignment.

1. The following numbers are for Handyman Company for 2003:

| | | | |
|---|---|---|---|
| Short-term Loans Payable | $ 10 | Long-term Debt | $207 |
| Interest Expense | 9 | Income Tax Expense | 4 |
| Paid in Capital | 50 | Retained Earnings (as of 1/1/03) | 31 |
| Cash | 10 | Receivables | 27 |
| Dividends | 0 | Sales | 700 |
| Accumulated Depreciation | 9 | Accounts Payable | 74 |
| Inventory | 153 | Property, Plant, & Equipment | 199 |
| Cost of Goods Sold | 519 | Other Operating Expenses | 160 |

Your assignment is to create a spreadsheet containing a balance sheet and an income statement for Handyman Company.

2. Handyman is wondering what its balance sheet and income statement would have looked like if the following numbers were changed as indicated:

| | CHANGE | |
|---|---|---|
| | From | To |
| Sales | 700 | 730 |
| Cost of Goods Sold | 519 | 550 |
| Other Operating Expenses | 160 | 165 |

Create a second spreadsheet with the numbers changed as indicated. Note: After making these changes, your balance sheet may no longer balance. Assume that any discrepancy is eliminated by increasing or decreasing Short-term Loans Payable as much as necessary.

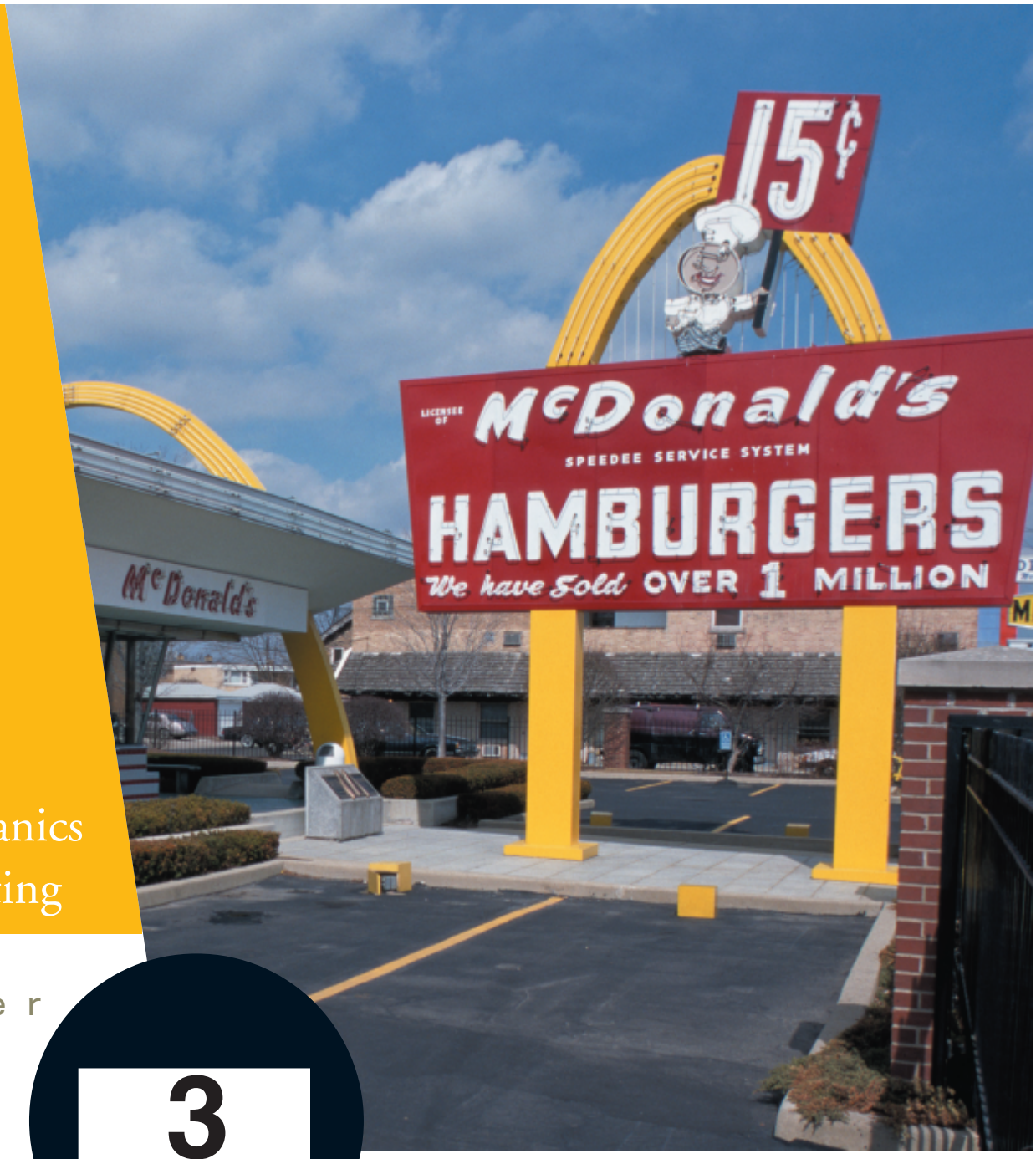
## INTERNET SEARCH

***Microsoft***

While you have a copy of **MICROSOFT** s annual report in Appendix A, let s go see what its most current financial statements look like. Access Microsoft s Web site at **http://www.microsoft.com**. Sometimes addresses change, so if this Microsoft address doesn t work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link to Microsoft.

Once you have accessed Microsoft s Web site, answer the following questions (you may have to search a bit to answer some of these questions):

1. When was Micro-Soft founded? (That s right, the company s name originally had a hyphen.)
2. Make your way to the shareholder information and locate the company s most recent income statement. Detail the steps you had to take to find this financial statement.
3. How has the company done since its 1999 financial statements were issued? Are sales still increasing? Are profits still on the rise?
4. Microsoft was one of the first companies to provide an income statement in multiple languages. Take a look at Microsoft s income statement based on accounting principles accepted in the United Kingdom. Do you recognize any of the terms? Now look at the German version of the income statement. Even though you probably don t speak German, can you guess what the German word is for  revenues ?




# The Mechanics of Accounting

chapter

3

## learning objectives

After studying this chapter, you should be able to:

1. Understand the process of transforming transaction data into useful accounting information.
2. Analyze transactions and determine how those transactions affect the accounting equation (step one of the accounting cycle).
3. Record the effects of transactions using journal entries (step two of the accounting cycle).
4. Summarize the resulting journal entries through posting and prepare a trial balance (step three of the accounting cycle).
5. Describe how technology has affected the first three steps of the accounting cycle.

Ray Kroc, a 51-year-old milkshake machine distributor, first visited the McDonald brothers drive-in (in San Bernardino, California) in July of 1954 because he wanted to know why a single hamburger stand needed ten milkshake machines. That first day, Kroc spent the lunch rush hour watching the incredible volume of business the small drive-in was able to handle. By the time he left town, Kroc had received a personal briefing on the McDonald s Speedee System from Dick and Mac McDonald and had secured the rights to duplicate the system throughout the United States.

In his first outlet in Chicago, Ray Kroc soon discovered that duplicating the McDonald s system involved more than just signing a licensing agreement. Kroc s french fries, for example, were mushy, even though he closely copied the McDonald brothers process. Feverish detective work finally revealed that Dick and Mac McDonald had been storing their potatoes in an outside bin before turning them into french fries. This aging process allowed some of the natural sugars in the potatoes to turn into starch, resulting in fries that would cook all the way through without burning. Further research revealed the optimal temperature for the cooking oil, the best type of potato to use, and how to make frozen french fries that taste as good as fresh. The end product, the **McDONALD S** french fry, was instrumental in establishing the McDonald s reputation for consistent quality.

As the number of McDonald s locations expanded (to 26,806 at the end of 1999), so did the menu. Originally, the McDonald s menu contained just 15-cent hamburgers, 12-cent french fries, 20-cent milkshakes, cheeseburgers, three flavors of soft drinks, milk, coffee, potato chips, and pie. The first addition to this menu was the Filet-O-Fish sandwich in the early 1960s. The Big Mac started in Pittsburgh in 1967, and the Egg McMuffin debuted in Santa Barbara in 1971. Not all of the McDonald s menu innovations caught on the McLean Deluxe (a low-fat hamburger held together with a seaweed-based filler) and the Hulaburger, one of Ray Kroc s personal favorites (a cheeseburger with a big slice of pineapple), are among the items that are no longer offered.

The essence of McDonald s business seems fairly simple: revenues come from selling Big Macs, Happy Meals, Chicken McNuggets, etc.; operating costs include the costs of the raw materials to produce the food items, labor costs, building rentals, income taxes, and so forth. But the magnitude of McDonald s operations in terms of volume (sales average over $105 million per day) as well as geography (McDonald s has locations in 118 countries throughout the world) makes compiling this information a challenge. In order to prepare its year-end financial reports, McDonald s must accumulate financial information from its various locations throughout the world, summarize that information according to U.S. accounting standards, and make the report available to the public in less than four weeks. In fact, McDonald s annual report for the period ended December 31, 1999, was finished on January 26, 2000.

## setting the stage

With the number of transactions that occur on a daily basis, the accounting for McDonald s would be impossible were it not for a systematic method for analyzing these transactions and collecting and recording transaction-related information. What is the process by which McDonald s and other entities transform raw transaction data into useful information? Certainly, shareholders and others would not understand how McDonald s has performed if the company merely published volumes of raw transaction data. How are millions of transactions summarized and eventually reported in the primary financial statements? This transformation process is referred to as the **accounting cycle**.

**accounting cycle** The procedure for analyzing, recording, summarizing, and reporting the transactions of a business.

*In the first two chapters, we provided an overview of accounting. We discussed the environment of accounting and its objectives, some basic concepts and assumptions of accounting, and the primary financial statements. Now we begin our study of the accounting cycle. This simply means that we will examine the procedures for analyzing, recording, summarizing, and reporting the transactions of a business. In this chapter, we describe the first three steps in the cycle. The remaining step (preparing reports for external users) is explained in Chapter 4.*

**1**

Understand the process of transforming transaction data into useful accounting information.

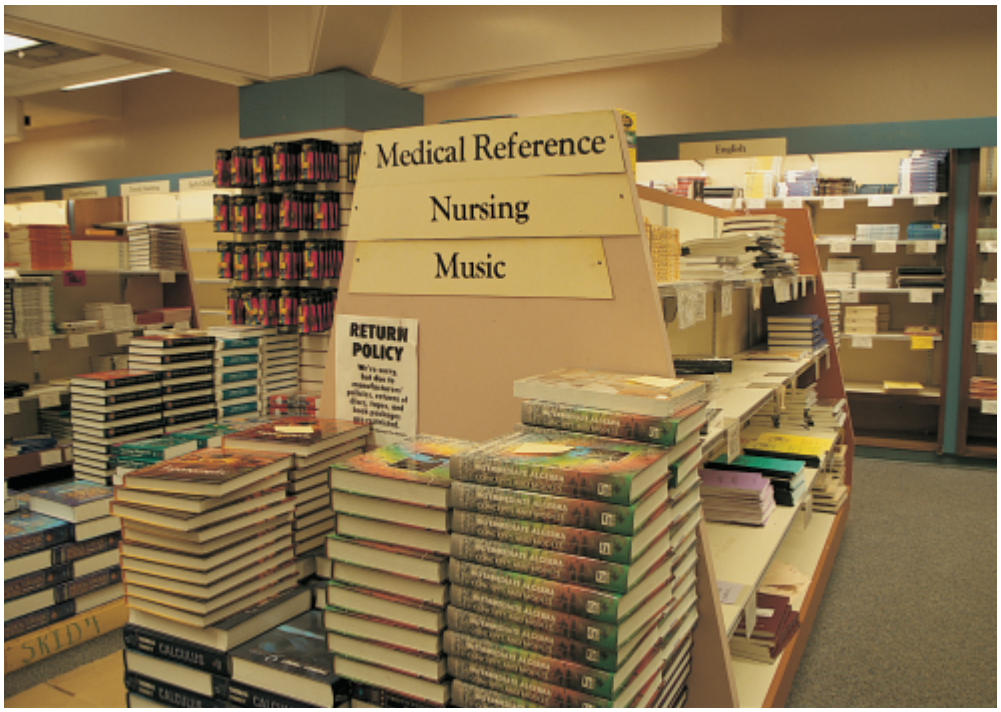
## HOW CAN WE COLLECT ALL THIS INFORMATION?

Suppose you were asked, What was the total cost, to the nearest dollar, of your college education last year? To answer this question would require that you (1) gather information (in the form of receipts, credit card statements, and canceled checks) for all your expenditures, (2) analyze that information to determine which outflows relate to your college education, and (3) summarize those outflows into one number the cost of your college education. Once you have answered that question, answer this one, How much did you spend on food last year? Again you would have to go through the same process of collecting data, analyzing the information to identify those expenditures relating to food, and then summarizing those expenditures into one number. From these two examples you can see that, without a method for gathering and organizing day-to-day financial data, answers to seemingly routine questions can get quite complex.

Now you may be thinking, Doesn t my checkbook allow me to easily answer these questions? Your check register would certainly help, but it is limited in that it tracks only the transactions that go through your checking account. It does not track the cash in your pocket, in your savings accounts, or in other investment accounts. So, if any of your expenditures for food were made with cash, your check register would understate the amount you spent for food. In addition, you would still have to review each check and determine to what it related. Your check register provides good information for calculating exactly how much money you have in your checking account at any point in time, but it does not contain all the information necessary to determine exactly how your money was spent.

Now consider the dilemma for businesses. They typically have far more transactions than you, and the kinds of transactions are more varied. Businesses buy and sell goods or services; borrow and invest money; pay wages to employees; purchase land, buildings, and equipment; distribute earnings to owners; and pay taxes to the government. These activities are referred to as exchange transactions because the entity is actually trading (exchanging) one thing for another. A college bookstore, for example, exchanges textbooks for cash. **Business documents**, such as a sales invoice, a purchase order, or a check stub, are often used (1) to confirm that an arm s-length transaction has occurred, (2) to establish the amounts to be recorded, and (3) to facilitate the analysis of business events.

**business documents**
Records of transactions used as the basis for recording accounting entries; include invoices, check stubs, receipts, and similar business papers.



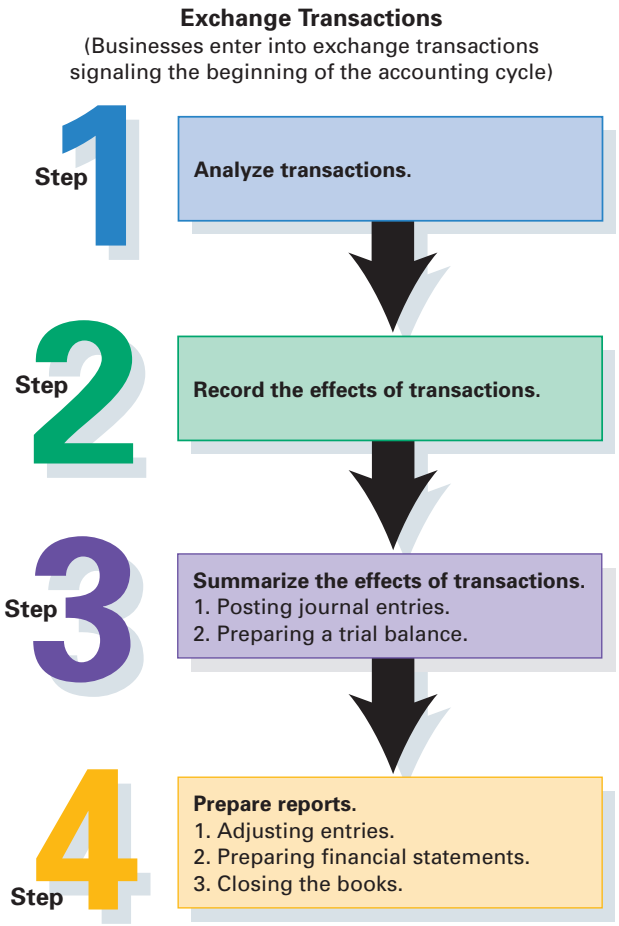

Businesses, such as a college bookstore, have many exchange transactions in which they trade one thing for another like textbooks for cash.

To determine how well an entity is managing its resources, the results of transactions must be analyzed. The accounting cycle makes the analysis possible by recording and summarizing an entity s transactions and preparing reports that present the summary results. Exhibit 3-1 shows the sequence of the accounting cycle. Later, we will discuss these general categories and the specific steps of the cycle.

Keeping track of a company s transactions requires a system of accounting that is tailor-made to the needs of that particular enterprise. Obviously, the accounting system of a large multinational corporation with millions of business transactions each day will be much more complex than the system needed by a small Internet start-up company. The more complex and detailed the accounting system, the more likely it is to be automated. Historically, of course, all accounting systems had to be maintained by hand. The image of the accountant with green eyeshade and quill pen, sitting on a high stool, meticulously maintaining the accounting records, reflects those early manual systems. Today, few accounting systems are completely manual. Even small companies generally use some type of inexpensive accounting software. Such software helps reduce the number of routine clerical functions and improves the accuracy and timeliness of the accounting records.

Although a computer-based system is faster and requires less labor than a manual system, the steps in the process are basically the same for both: transactions are recorded on source documents; they are then analyzed, journalized, and posted to the accounts; and the resulting information is summarized, reported, and used for evaluation purposes. The difference lies in who (or what) does the work. With a computer-based system, the software transforms the recorded data, summarizes the data into categories, and prepares the financial statements and other re-

**exhibit 3-1** Sequence of the Accounting Cycle



ports. Nevertheless, human judgment is still essential in analyzing and recording transactions, especially those of a nonroutine nature.

Because a manual accounting system is easier to understand, we will use a manual system for the examples in this text. As you begin studying the steps in the accounting cycle, it is important that you understand the accounting equation and double-entry accounting more fully. This concept was briefly introduced in Chapter 2. You will recall that the accounting model is built on this basic equation. You now need to learn how to use the equation in accounting for the transactions of a business.

## to summarize

Businesses enter into exchange transactions. Evidence of these transactions is provided by business documents. Accounting is designed to accumulate and report in summary form the results of a company s transactions, therefore transforming the financial data into useful information for decision making.

**2**

Analyze transactions and determine how those transactions affect the accounting equation (step one of the accounting cycle).

## HOW DO TRANSACTIONS AFFECT THE ACCOUNTING EQUATION?

Suppose you are the keeper of the archives at **McDONALD S** assigned to protect the secret ingredient mix for the Big Mac special sauce. You came to work this morning only to hear that **BURGER KING** has cracked the secret ingredient recipe and plans to come out with a Big Mac clone at half the price. How would this event be reflected in the financial statements?

Often, the most difficult aspect of accounting is determining which events are to be reflected in the accounting records and which are not. In this example, the proliferation of Big Mac clones could have a serious impact on the future of the firm. However, as discussed in Chapter 2, events that cannot be measured in monetary terms will not be reflected in the financial statements. It would be virtually impossible to reliably quantify the impact that Big Mac clones could have on the future profitability of McDonald s, and thus, that information would not be reflected in the financial statements.

Now you may be saying to yourself, We have an obligation to inform financial statement users about this attack on the Big Mac. We would all agree that this information should be shared, but the financial statements are not the place to do it. As you review **MICROSOFT** s annual report (in Appendix A), you ll notice that the financial statements are only one part of the information provided to users. Information relating to the competitive environment, product development, and marketing and sales efforts is included in the annual report, but not as part of the accounting information.

After quantifying an event s monetary impact, the event must be analyzed to determine if an arm s-length transaction has occurred. Accounting is concerned primarily with reflecting the effects of transactions between two independent entities. So a mining company s oil strike on the North Slope of Alaska would not be reflected in the financial statements until that oil is sold. Likewise, signing a promising young financial analyst directly out of college for a salary of $80,000 per year involves an exchange of promises. No accounting entry would be made until the analyst actually worked and received a paycheck.

Transactions between independent parties must be analyzed to determine their effect on the accounting equation. This analysis is often what separates an accountant from a bookkeeper. While many transactions are routine, some business events are quite complex and require a comprehensive analysis to determine how the event should be reflected in the financial statements. Consider the following examples:

Access **McDONALD S** Web site (**http://www.mcdonalds.com**) and compare it to **BURGER KING** s (**http://www.burgerking.com**). In your opinion, which Web site is easier to navigate? How easy is it to find information on, for example, nutrition? Which site provides easier access to the company s financial information?

An employee works for one year, earning a base salary of $60,000. In addition, if the employee stays with the company for at least five years, the company promises to make a contribution to the employee s pension fund equal to 15% of salary. Approximately 60% of employees who start with the company stay for five years. Also, by working for one year, the employee earns 15 extra vacation days. Those vacation days can be saved and used any time in the future. How do we record compensation cost associated with this employee for the year?

A company buys a building. In addition to paying $20,000 cash, the company agrees to pay $10,000 per year for the next ten years. The company will also pay a $2,000 property tax bill associated with the building from last year. As part of the purchase, the company gave the former owners of the building 500 shares of stock. Finally, the building will require $23,000 worth of repairs and renovations before it can be used. How much should be recorded as the cost of the building?

As these examples illustrate, transactions can become quite complex and the accounting for these types of transactions reflects that complexity. The good news is that the transaction analysis framework introduced in this chapter allows you to break complex transactions into manageable pieces and also provides a self-checking mechanism to ensure that you haven t forgotten anything. Once a transaction is properly analyzed and the affected accounts identified (along with the direction of those effects), the remainder of the accounting cycle can proceed without much difficulty.

## The Accounting Equation

So let s begin our analysis of transactions by first reviewing some of the basics. Recall that the fundamental accounting equation is:

| **Assets** | = | **Liabilities** | + | **Owners Equity** |
|---|---|---|---|---|
| [Resources] | | [Creditors claims against resources] | | [Owners claims against resources] |

Because the accounting equation is an equality, it must always remain in balance. To see how this balance is maintained when accounting for business transactions, consider the following activities:

| **Business Activity (Transaction)** | **Effect in Terms of the Accounting Equation** |
|---|---|
| 1. Investment of $50,000 by owners | Increase asset (Cash), increase owners equity (Capital Stock): A ↑ $50,000 = OE ↑ $50,000 |
| 2. Borrowed $25,000 from bank | Increase asset (Cash), increase liability (Notes Payable): A ↑ $25,000 = L ↑ $25,000 |
| 3. Purchased $14,000 worth of inventory on credit. The inventory is to be resold at a later date. | Increase asset (Inventory), increase liability (Accounts Payable): A ↑ $14,000 = L ↑ $14,000 |
| 4. Purchased equipment costing $15,000 for cash | Decrease asset (Cash), increase asset (Equipment): A ↓ $15,000 = A ↑ $15,000 |

For each of the transactions, the terms in parentheses are the specific accounts affected by the transactions, as will be explained in the next section.

In each case, the equation remains in balance because an identical amount is added to both sides, subtracted from both sides, or added to and subtracted from the same side of the equation. Following each transaction, we can ensure that the accounting equation balances. Note how the following spreadsheet keeps track of the equality of the accounting equation:

| TRANSACTION # | ASSETS | | LIABILITIES | | OWNERS EQUITY |
|---|---|---|---|---|---|
| Beginning Balance | $ 0 | = | $ 0 | + | $ 0 |
| 1 | +50,000 | | | | +50,000 |
| Subtotal | $50,000 | = | $ 0 | + | $50,000 |
| 2 | +25,000 | | +25,000 | | |
| Subtotal | $75,000 | = | $25,000 | + | $50,000 |
| 3 | +14,000 | | +14,000 | | |
| Subtotal | $89,000 | = | $39,000 | + | $50,000 |
| 4 | +15,000<br>−15,000 | | | | |
| Total | $89,000 | = | $39,000 | + | $50,000 |

## Using Accounts to Categorize Transactions

In Chapter 2, the balance sheet and the income statement were introduced as two of the three primary financial statements, the third being the statement of cash flows. We learned that the elements of the balance sheet are assets, liabilities, and owners equity; the elements of the income statement are revenues and expenses. Now we must learn how each of these elements is composed of many different accounts.

**account** An accounting record in which the results of transactions are accumulated; shows increases, decreases, and a balance.

An **account** is a specific accounting record that provides an efficient way to categorize transactions. Thus, we may designate asset accounts, liability accounts, and owners equity accounts. Examples of asset accounts are Cash, Inventory, and Equipment. Liability accounts include Accounts Payable and Notes Payable. The equity accounts for a corporation are Capital Stock and Retained Earnings. You can think of an individual account as a summary of every transaction affecting a certain item (such as cash); the summary may be recorded on one page of a book, or in one computer file, or in one column of a spreadsheet (seen as follows).

business environment essay

**Do Accountants Record the Most Important Events?** Are all important economic events captured in a company s accounting records? No. In fact, the majority of events that affect the value of a company may fall outside the scope of traditional financial reporting. Consider the following selection of business events reported on the front page of *The Wall Street Journal* (Business and Finance column) on a typical day (Friday, August 11, 2000):

**DELL** s earnings rose 19%, exceeding estimates, but revenue rose at its slowest rate in five years.

**AT&T** s board of directors and management are considering breaking up the company by spinning off certain assets.

**FIRESTONE** instigates the second biggest tire recall ever.

The yield on 10-year Treasury notes fell to 5.754%, its lowest level this year.

**KMART** and **LAND S END** released operating results that fell short of already lowered market expectations.

Brazil s **PETROBAS** began trading on the NYSE.

All of these events had impacts on the values of companies. For example, Dell s announcement caused the value of the company s shares to decrease by about

| | ASSETS | | | | LIABILITIES | | | OWNERS EQUITY |
|---|---|---|---|---|---|---|---|---|
| Transaction # | Cash | Inventory | Equipment | | Accounts Payable | Notes Payable | | Capital Stock |
| Beginning Balance | $ 0 | $ 0 | $ 0 | = | $ 0 | $ 0 | + | $ 0 |
| 1 | +50,000 | | | | | | | +50,000 |
| Subtotal | $50,000 | $ 0 | $ 0 | = | $ 0 | $ 0 | + | $50,000 |
| 2 | +25,000 | | | | | +25,000 | | |
| Subtotal | $75,000 | $ 0 | $ 0 | = | $ 0 | $25,000 | + | $50,000 |
| 3 | | +14,000 | | | +14,000 | | | |
| Subtotal | $75,000 | $14,000 | $ 0 | = | $14,000 | $25,000 | + | $50,000 |
| 4 | −15,000 | | +15,000 | | | | | |
| Total | $60,000 | $14,000 | $15,000 | = | $14,000 | $25,000 | + | $50,000 |

Using the previous transactions, we can easily see how the accounting equation can be expanded to include specific accounts under the headings of assets, liabilities, and owners equity. We can also see that after each transaction, the equality of the accounting equation can be determined simply by adding up the balances of all the asset accounts and comparing the total to the sum of all the liability and owners equity accounts.

Now suppose that a company has 200 accounts and 10,000 transactions each month this spreadsheet would quickly get very big. Today, computers help in compiling this massive amount of data. Five hundred years ago, when double-entry accounting was formalized, all the adding and subtracting was done by hand. You can imagine the difficulties of tracking multiple ac-

5%. And yet none of these value-relevant events would have been recorded in the accounting records of any company anywhere in the world.

Accounting academics have long been dismayed by the weak connection between a company s reported accounting numbers and the company s market value. In a famous paper, Professor Baruch Lev summarized this issue as follows:

> The correlation between earnings and stock returns is very low, sometimes negligible. . . . [T]he possibility that the fault lies with the low quality . . . of reported earnings looms large.

The challenge to accountants is to figure out how to bring more business events into the accounting model in order to increase the relevance of the financial statements. The risk of doing nothing to improve accounting is that potential investors and creditors will increasingly turn their backs on the financial statements when they can get more current, comprehensive, and relevant information merely by using an Internet search engine.

**Source:** Baruch Lev, On the Usefulness of Earnings and Earnings Research: Lessons and Directions from Two Decades of Empirical Research, *Journal of Accounting Research*, Supplement 1989, p. 153.

counts, involving hundreds of transactions, using the spreadsheet method described above while doing all the computations by hand. Mixing + and − in one column would provide ample opportunity to make mistakes.

This problem was solved by separating the + and the − for each account into separate columns, totaling each column, and then computing the difference between the columns to arrive at an ending balance. The simplest, most fundamental format is the configuration of the letter T. This is called a **T-account**. Note that a T-account is an abbreviated representation of an actual account (illustrated later) and is used as a teaching and learning tool. The following are examples of T-accounts, representing the transactions described previously.

**T-account** A simplified depiction of an account in the form of a letter T.

| Cash | Inventory | Equipment |
|---|---|---|
| | | |

| Accounts Payable | Notes Payable | Capital Stock |
|---|---|---|
| | | |

**debit** An entry on the left side of a T-account.

**credit** An entry on the right side of a T-account.

The account title (Cash, for example) appears at the top of the T-account. Transaction amounts may be recorded on both the left side and the right side of the T-account. Instead of using the terms left and right to indicate which side of a T-account is affected, terms unique to accounting were developed. **Debit** is used to indicate the left side of a T-account, and **credit** is used to indicate the right side of a T-account. Debit means left, credit means right nothing more, nothing less.

**fyi**

Where does the DR come from when the term *debit* doesn t have an r in it? Recall that accounting, as we know it today, was formalized in the 1500s in Italy. The Italian and Latin (a common language back then) verb forms of debit are *addebitare* and *debere*, respectively. Thus, the DR represents an Italian or Latin abbreviation of debit.

Besides representing the left and right sides of an account, the terms *debit* (abbreviated DR) and *credit* (abbreviated CR) take on additional meaning when coupled with a specific account. By convention, for asset accounts, debits refer to increases and credits to decreases. For example, to increase the cash account, we debit it; to decrease the cash account, we credit it. Since we expect the total increases in the cash account to be greater than the decreases, the cash account will usually have a debit balance after accounting for all transactions. Thus, we can make this generalization asset accounts will have debit balances. The opposite relationship is true of liability and owners equity accounts; they are decreased by *debits* and increased by *credits*. As a result, liability and owners equity accounts will typically have credit balances. The effect of this system is shown here, with an increase indicated by (+) and a decrease by (−).

| Assets | | = | Liabilities | | + | Owners Equity | |
|---|---|---|---|---|---|---|---|
| DR (+) | CR (−) | | DR (−) | CR (+) | | DR (−) | CR (+) |
| | | | | | | | |

**caution**

Just a reminder that asset accounts will typically have debit balances, whereas liabilities and owners equity accounts will typically have credit balances.

In addition to assets equaling liabilities and owners equity, debits also equal credits. If you fully grasp the meaning of these two equalities, you are well on your way to mastering the mechanics of accounting. Debits and credits allow us to take a shortcut to ensure that the accounting equation balances. If, for every transaction, debits equal credits, then the accounting equation will balance.

To understand why this happens, keep in mind three basic facts regarding double-entry accounting:

**f y i**

The word *credit* is associated with something good because your bank account increases when the bank credits your account. The bank uses this term because, from its standpoint, your account represents a liability the bank owes you the amount of money in your account. Thus, when the bank credits your account (a liability), the bank is increasing the recorded amount it owes you.

1. Debits are always entered on the left side of an account and credits on the right side.
2. For every transaction, there must be at least one debit and one credit.
3. Debits must always equal credits for each transaction.

Now notice what this means for one of the business transactions shown earlier (page 83): investment by owners. An asset account (Cash) is debited; it is increased. An owners equity account (Capital Stock) is credited; it is also increased. There is both a debit and a credit for the transaction, and we have increased accounts on both sides of the equation by an equal amount, thus keeping the accounting equation in balance.

Be careful not to let the general, nonaccounting meanings of the words *credit* and *debit* confuse you. In general conversation, credit has an association with plus and debit with minus. But on the asset side of the accounting equation, where debit means increase and credit means decrease, this association can lead you astray. In accounting, debit simply means left and credit simply means right. To make sure you understand the relationship between debits and credits, the various accounts, and the accounting equation, let us examine further the transactions listed on page 83.

| Business Activity (Transaction) | Effect in Terms of the Accounting Equation | | | | | |
|---|---|---|---|---|---|---|
| | Assets | | = Liabilities | | + Owners Equity | |
| 1. Investment by owners | Cash DR (+) | | | | | Capital Stock CR (+) |
| 2. Borrowed money from bank | Cash DR (+) | | | Notes Payable CR (+) | | |
| 3. Purchased inventory on credit | Inventory DR (+) | | | Accounts Payable CR (+) | | |
| 4. Purchased equipment for cash | Equipment DR (+) | Cash CR (−) | | | | |

Note that every time an account is debited, other accounts have to be credited for the same amount. This is the major characteristic of the double-entry accounting system: *the debits must always equal the credits*. This important characteristic creates a practical advantage: the opportunity for self-checking. If debits do not equal credits, an error has been made in analyzing and recording the entity s activities.

Before proceeding any further, let s stop for a moment and review the relationship between the various types of accounts and debits and credits. It is in your best interest not to go on until you understand these relationships.

| Account Type | | | Debit or Credit? | Ending Balance |
|---|---|---|---|---|
| Asset | Increase (+) | results in | Debit | Debit |
| | Decrease (−) | results in | Credit | |
| Liability | Increase (+) | results in | Credit | Credit |
| | Decrease (−) | results in | Debit | |
| Owners' Equity | Increase (+) | results in | Credit | Credit |
| | Decrease (−) | results in | Debit | |

## Expanding the Accounting Equation to Include Revenues, Expenses, and Dividends

At this point, we must bring revenues and expenses into the picture. Obviously, they are part of every ongoing business. Revenues provide resource inflows; they are increases in resources from the sale of goods or services. Expenses represent resource outflows; they are costs incurred in generating revenues. Note that revenues are not synonymous with cash or other assets, but are a way of describing where the assets came from. For example, cash received from the sale of a product would be considered revenue. Cash received by borrowing from the bank would not be revenue, but an increase in a liability. By the same token, expenses are a way of describing how an asset has been used. Thus, cash paid for interest on a loan is an expense, but cash paid to buy a building represents the exchange of one asset for another.

**caution**

We stated previously that owners equity accounts will have credit balances. However, expenses, a component of Retained Earnings, will almost always have debit balances. Since revenues will usually exceed expenses, the net effect on Retained Earnings will result in a credit balance.

How do revenues and expenses fit into the accounting equation? Remember that revenues minus expenses equals net income; and net income is a major source of change in owners equity from one accounting period to the next. Revenues and expenses, then, may be thought of as *temporary* subdivisions of owners equity. Revenues increase owners equity and so, like all owners equity accounts, are increased by credits. Expenses reduce owners equity and are therefore increased by debits. As will be explained in Chapter 4, all revenue and expense accounts are closed into the retained earnings account at the end of the accounting cycle.

**dividends** Distributions to the owners (stockholders) of a corporation.

One other temporary account affects owners equity. It is the account that shows distributions of earnings to owners. For a corporation, this account is called **Dividends**. Since dividends reflect payments to the owners, therefore reducing owners equity, the dividends account is increased by a debit and decreased by a credit. The dividends account, like revenues and expenses, is also closed into the retained earnings account.

Just a warning here: students who have trouble grasping debits and credits usually get hung up on the revenue and expense accounts. Remember that revenues and expenses are subcategories of Retained Earnings. When you credit a revenue account, you are essentially increasing Retained Earnings. When you debit an expense account, you are increasing the amount of expense, which in turn reduces Retained Earnings.

Using the corporate form of business as an example, the accounting equation may be expanded to include revenues, expenses, and dividends, as shown in Exhibit 3-2.

Keep in mind that in actual business practice, when a manual accounting system is used, the T-account is an integral feature of a more formal and complete account. Exhibit 3-3 is an example of such an account. Note that in addition to the debits and credits in the T-account portion (drawn in heavy lines in this example), the account has a title, Cash; an account number, 101; and columns for a transaction date, an explanation of the transaction, a posting reference (a cross-reference to other accounting records), and a balance.

## Why Should I Understand the Mechanics of Accounting?

If computers now take care of all the routine accounting functions, why does a businessperson need to know anything about debits, credits, journals, posting, T-accounts, and trial balances? Good question. First of all, even though computers now do most of the dirty work, the essence of double-entry accounting is unchanged from the days of quill pens and handwritten ledgers. Thus, understanding the process explained in this chapter is still relevant to a computer-based accounting system. In addition, with or without computers, the use of debits, credits, and T-accounts still provides an efficient and widely used shorthand method of analyzing transactions. At a minimum, all businesspeople should be familiar enough with the language of accounting to understand, for example, why a credit balance in Cash or a debit balance in Retained Earnings is something unusual enough to merit investigation. Finally, an understanding of the accounting cycle analyzing, recording, summarizing, and preparing gives one insight into how information flows within an organization. And great advantages accrue to those who understand information flow.

**exhibit 3-2** Expanded Accounting Equation

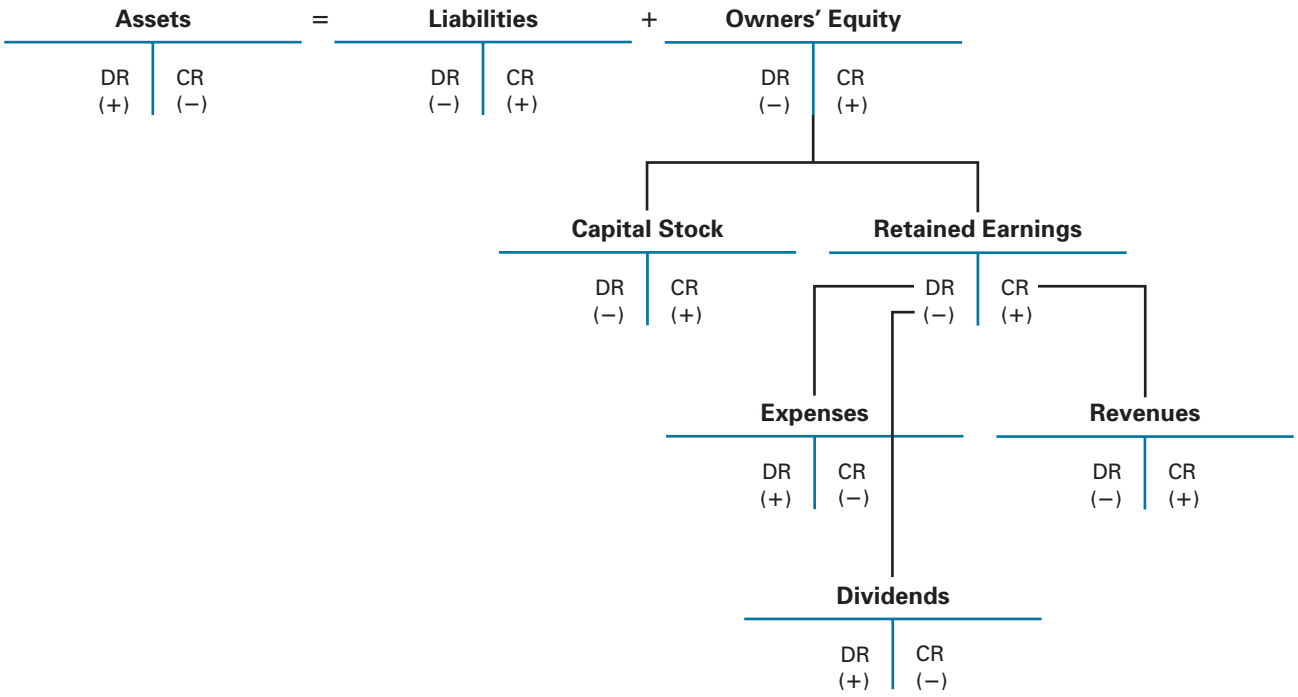



**exhibit 3-3** Typical Account

**ACCOUNT: Cash** **ACCOUNT NO. 101**

| Date | Explanation | Post. Ref. | Debits | Credits | Balance |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## to summarize

Regardless of the size or complexity of a business, or the manner in which the records are maintained (manual or automated system), the steps of the accounting cycle are the same. The entire process is based on double-entry accounting and the basic accounting equation. Accounts accumulate the results

of transactions. Debits are always entered on the left side of an account, and credits are always entered on the right side. Debits increase asset, expense, and dividend accounts and decrease liability, owners equity, and revenue accounts. Credits decrease asset, expense, and dividend accounts and increase liability, owners equity, and revenue accounts. Revenues increase owners equity, whereas expenses and dividends decrease owners equity. Therefore, under a double-entry system of accounting, it is always possible to check the accounting records to see that Assets = Liabilities + Owners Equity and debits equal credits.

---

## HOW DO WE RECORD THE EFFECTS OF TRANSACTIONS?

**3**

Record the effects of transactions using journal entries (step two of the accounting cycle).

With our knowledge of the different types of accounts (assets, liabilities, and owners equity) and the use of the terms *debit* and *credit* (debit means left and credit means right), we are now ready to actually record the effects of transactions.

**journal** An accounting record in which transactions are first entered; provides a chronological record of all business activities.

The second step in the accounting cycle is to record the results of transactions in a **journal**. Known as books of original entry, journals provide a chronological record of all entity transactions. They show the dates of the transactions, the amounts involved, and the particular accounts affected by the transactions. Sometimes a detailed description of the transaction is also included.

This chronological recording of transactions provides a company with a complete record of its activities. If amounts were recorded directly in the accounts, it would be difficult, if not impossible, for a company to trace a transaction that occurred, say, six months previously.

Smaller companies, such as a locally owned pizza restaurant, may use only one book of original entry, called a general journal, to record all transactions. Larger companies having thousands of transactions each year may use special journals (for example, a cash receipts journal) as well as a general journal.

**journalizing** Recording transactions in a journal.

A specific format is used in **journalizing** (recording) transactions in a general journal. The debit entry is listed first; the credit entry is listed second and is indented to the right. Normally, the date and a brief explanation of the transaction are considered essential parts of the **journal entry**. (In the text, we often ignore dates and explanations to simplify the examples.) Dollar signs usually are omitted. Unless otherwise noted, this format will be used whenever a journal entry is presented.

**journal entry** A recording of a transaction where debits equal credits; usually includes a date and an explanation of the transaction.

**General Journal Entry Format**

| | | | |
|---|---|---|---|
| Date | Debit Entry . . . . . | xx | |
| | Credit Entry . . . . . | | xx |
| | *Explanation.* | | |

Exhibit 3-4 is a partial page from a general journal, showing typical journal entries. Study this exhibit carefully because the entire accounting cycle is based on journal entries. If journal entries are incorrect, the resulting financial information will be inaccurate.

To give you additional exposure to analyzing transactions and recording journal entries, we are going to start our own business. Rather than spend the summer flipping burgers at the local hamburger house, you decide that you want to have an outdoor job one that allows you to enjoy the summer sun, engage in rigorous physical activity, and sharpen your skills as an entrepreneur. You are going to start your own landscaping business. This business will involve mowing lawns, pulling weeds, trimming and planting shrubs, and so forth. We will use your new business to illustrate the journal entries used to record some common transactions of a business enterprise.[1]

1 Normally, a small business like this one would be started as a sole proprietorship or as a partnership. We assume a corporation here to show a complete set of transactions.

**exhibit 3-4** General Journal

JOURNAL Page 1

| Date | Description | Post. Ref. | Debits | Credits |
|---|---|---|---|---|
| 2003 July 1 | Cash | | 2,000 | |
| | Capital Stock | | | 2,000 |
| | *Issued 200 shares of capital stock at $10 per share.* | | | |
| | | | | |
| 5 | Truck | | 800 | |
| | Cash | | | 800 |
| | *Purchased a used truck.* | | | |
| | | | | |
| 5 | Equipment | | 250 | |
| | Accounts Payable | | | 250 |
| | *Purchased a lawnmower on account.* | | | |
| | | | | |
| 5 | Supplies | | 180 | |
| | Cash | | | 180 |
| | *Purchased supplies for cash.* | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

These transactions fit into the following four general categories: acquiring cash, acquiring other assets, selling goods or providing services, and collecting cash and paying obligations. Obviously, we cannot present all possible transactions in this chapter. In studying the illustrations, strive to understand the conceptual basis of transaction analysis rather than memorizing specific journal entries. Pay particular attention to the dual effect of each transaction on the company in terms of the basic accounting equation (that is, its impact on assets and on liabilities and owners equity). Remember that business activity involves revenues, expenses, and distributions to owners as well, and that these accounts eventually increase or decrease owners equity (the retained earnings account for a corporation).

## Acquiring Cash, Either from Owners or by Borrowing

Your first task in starting this business is to acquire cash, either through owners investments or by borrowing. Your parents indicate that they will match any funds that you are going to put into your business. You have $1,000 in savings, and coupled with your parents matching funds, you decide to issue 200 shares of stock.

**EXAMPLE 1** The following transaction illustrates investments by owners:

assets (+)
owners equity (+)

Cash . . . . . 2,000
Capital Stock . . . . . 2,000
*Issued 200 shares of capital stock at $10 per share.*

This transaction increases cash as a result of capital stock being issued to investors, or stockholders. The cash account is debited, and the capital stock account is credited. The economic impact of this situation may be summarized as follows:

| | ASSETS | | | | | = | LIABILITIES | | + | OWNERS EQUITY |
|---|---|---|---|---|---|---|---|---|---|---|
| Transaction # | Cash | Inventory | Equipment | Supplies | Truck | | Accounts Payable | Notes Payable | | Capital Stock |
| Beginning Balance | $ 0 | $0 | $0 | $0 | $0 | = | $0 | $0 | + | $ 0 |
| Invested money in the business | 2,000 | | | | | | | | | 2,000 |
| Subtotal | $2,000 | $0 | $0 | $0 | $0 | = | $0 | $0 | + | $2,000 |

**EXAMPLE 2** Suppose that in addition to coming up with the money yourself or from your parents, you went to a bank and convinced the loan officer to lend you the money. The journal entry for such a transaction would be:

assets (+)
liabilities (+)

| | | |
|---|---|---|
| Cash | 2,000 | |
| Notes Payable | | 2,000 |
| *Borrowed $2,000 from First National Bank, signing a 12-month note at 12% interest.* | | |

Here, the cash account is debited, and the notes payable account is credited. The accounting equation captures the economic impact of borrowing the money as follows:

| | ASSETS | | | | | = | LIABILITIES | | + | OWNERS EQUITY |
|---|---|---|---|---|---|---|---|---|---|---|
| Transaction # | Cash | Inventory | Equipment | Supplies | Truck | | Accounts Payable | Notes Payable | | Capital Stock |
| Beginning Balance | $ 0 | $0 | $0 | $0 | $0 | = | $0 | $ 0 | + | $ 0 |
| Invested money in the business | 2,000 | | | | | | | | | 2,000 |
| Borrowed money from a bank | 2,000 | | | | | | | 2,000 | | |
| Subtotal | $4,000 | $0 | $0 | $0 | $0 | = | $0 | $2,000 | + | $2,000 |

## Acquiring Other Assets

Now that you have obtained the funds necessary to start your business, either from owner investment or by borrowing, you can use that money to acquire other assets needed to operate the business. Such assets include supplies (such as fertilizer), inventory (perhaps shrubs that you will plant), and equipment (for example, a lawnmower and a truck for hauling). These assets may be purchased with cash or on credit. Credit purchases require payment after a period of time, for example, 30 days. Normally, interest expense is incurred when assets are bought on a time-payment plan that extends beyond two or three months. (To keep our examples simple here, we will not include interest expense. We will show how to account for interest on page 98, where we discuss the payment of obligations.) Examples of transactions involving the acquisition of noncash assets follow.

**EXAMPLE 1** The first thing you need is a lawnmower and some form of transportation. You find an old 1988 pickup truck for sale for $800, and you buy it paying cash.

| | | | |
|---|---|---|---|
| assets (+) | Truck | 800 | |
| assets (−) | Cash | | 800 |
| | *Purchased a used truck.* | | |

The accounting equation shows:

| | ASSETS | | | | | = | LIABILITIES | | + | OWNERS EQUITY |
|---|---|---|---|---|---|---|---|---|---|---|
| **Transaction #** | **Cash** | **Inventory** | **Equipment** | **Supplies** | **Truck** | | **Accounts Payable** | **Notes Payable** | | **Capital Stock** |
| Beginning Balance | $ 0 | $0 | $0 | $0 | $ 0 | = | $0 | $ 0 | + | $ 0 |
| Invested money in the business | 2,000 | | | | | | | | | 2,000 |
| Borrowed money from a bank | 2,000 | | | | | | | 2,000 | | |
| Purchased a truck paying cash | −800 | | | | 800 | | | | | |
| Subtotal | $3,200 | $0 | $0 | $0 | $800 | = | $0 | $2,000 | + | $2,000 |

Next, you drive to the local Sears store and purchase a Craftsman lawnmower and gas can for $250. Instead of paying for the mower with cash, you open a charge account, which will allow you to pay for the mower in 30 days with no interest charge. (If you wait and pay beyond this 30-day grace period, an interest charge will apply.) The journal entry to record this purchase is:

| | | | |
|---|---|---|---|
| assets (+) | Equipment | 250 | |
| liabilities (+) | Accounts Payable | | 250 |
| | *Purchased a lawnmower and gas can on account.* | | |

The accounting equation shows:

| | ASSETS | | | | | = | LIABILITIES | | + | OWNERS EQUITY |
|---|---|---|---|---|---|---|---|---|---|---|
| **Transaction #** | **Cash** | **Inventory** | **Equipment** | **Supplies** | **Truck** | | **Accounts Payable** | **Notes Payable** | | **Capital Stock** |
| Beginning Balance | $ 0 | $0 | $ 0 | $0 | $ 0 | = | $ 0 | $ 0 | + | $ 0 |
| Invested money in the business | 2,000 | | | | | | | | | 2,000 |
| Borrowed money from a bank | 2,000 | | | | | | | 2,000 | | |
| Purchased a truck paying cash | −800 | | | | 800 | | | | | |
| Purchased a mower on account | | | 250 | | | | 250 | | | |
| Subtotal | $3,200 | $0 | $250 | $0 | $800 | = | $250 | $2,000 | + | $2,000 |

When you pay for the mower, cash will be reduced, and the liability, Accounts Payable, will also be reduced, thus keeping the equation in balance.

**EXAMPLE 2** Off you go to the neighborhood Eagle Hardware & Garden Shop to purchase fertilizer, gloves, a rake, a shovel, and other assorted supplies. The total cost is $180, which you pay in cash; an increase in one asset (supplies) results in a decrease in another asset (cash).

| | | | |
|---|---|---|---|
| assets (+) | Supplies | 180 | |
| assets (−) | Cash | | 180 |
| | *Purchased supplies for cash.* | | |

The accounting equation shows:

| | ASSETS | | | | | = | LIABILITIES | | + | OWNERS EQUITY |
|---|---|---|---|---|---|---|---|---|---|---|
| **Transaction #** | **Cash** | **Inventory** | **Equipment** | **Supplies** | **Truck** | | **Accounts Payable** | **Notes Payable** | | **Capital Stock** |
| Beginning Balance | $ 0 | $0 | $ 0 | $ 0 | $ 0 | = | $ 0 | $ 0 | + | $ 0 |
| Invested money in the business | 2,000 | | | | | | | | | 2,000 |
| Borrowed money from a bank | 2,000 | | | | | | | 2,000 | | |
| Purchased a truck paying cash | −800 | | | | 800 | | | | | |
| Purchased a mower on account | | | 250 | | | | 250 | | | |
| Purchased supplies for cash | −180 | | | 180 | | | | | | |
| Subtotal | $3,020 | $0 | $250 | $180 | $800 | = | $250 | $2,000 | + | $2,000 |

**EXAMPLE 3** On your way home from the hardware store, you drive past a greenhouse and notice a big sign advertising a 50% off sale on shrubs. Since you anticipate that planting shrubs will be part of your business, you stop and purchase for cash $150 worth of shrubs as inventory. You plan to make money in two ways with the shrubs: (1) revenue from the labor associated with planting them and (2) a profit on selling the shrubs for more than you paid. (This is fair; after all, you are saving your client the time and trouble of having to go to the greenhouse.)

| | | | |
|---|---|---|---|
| assets (+) | Inventory | 150 | |
| assets (−) | Cash | | 150 |
| | *Purchased inventory for cash.* | | |

The accounting equation shows:

| | ASSETS | | | | | = | LIABILITIES | | + | OWNERS EQUITY |
|---|---|---|---|---|---|---|---|---|---|---|
| Transaction # | Cash | Inventory | Equipment | Supplies | Truck | | Accounts Payable | Notes Payable | | Capital Stock |
| Beginning Balance | $ 0 | $ 0 | $ 0 | $ 0 | $ 0 | = | $ 0 | $ 0 | + | $ 0 |
| Invested money in the business | 2,000 | | | | | | | | | 2,000 |
| Borrowed money from a bank | 2,000 | | | | | | | 2,000 | | |
| Purchased a truck paying cash | −800 | | | | 800 | | | | | |
| Purchased a mower on account | | | 250 | | | | 250 | | | |
| Purchased supplies for cash | −180 | | | 180 | | | | | | |
| Purchased inventory for cash | −150 | 150 | | | | | | | | |
| Subtotal | $2,870 | $150 | $250 | $180 | $800 | = | $250 | $2,000 | + | $2,000 |

## Selling Goods or Providing Services

Now that you have your lawnmower, your transportation, your supplies, and your inventory, it is time to go to work. The next category of common transactions involves the sale of services or merchandise. Revenues are generated and expenses incurred during this process. Sometimes services and merchandise are sold for cash; at other times, they are sold on credit (on account), and a receivable is established for collection at a later date. Therefore, revenues indicate the source not only of cash but of other assets as well, all of which are received in exchange for the merchandise or services provided. Similarly, expenses may be incurred and paid for immediately by cash, or they may be incurred on credit that is, they may be charged, with a cash payment to be made at a later date. Illustrative transactions follow. Note the effect of revenues and expenses on owners equity is indicated in brackets for each transaction.

**EXAMPLE 1** As soon as people find out that you are in the lawn care and landscaping business, your phone begins ringing off the hook. Although most of your clients pay you immediately when you perform the service, some prefer to pay you once a month. As a result, a portion of your revenues is received immediately in cash, while the balance becomes receivables. The journal entry to record your first week s revenue for lawn care services is:

| | | | |
|---|---|---|---|
| assets (+) | Cash | 270 | |
| assets (+) | Accounts Receivable | 80 | |
| revenues (+) [equity (+)] | Lawn Care Revenue | | 350 |
| | *To record revenue for lawn care services.* | | |

**compound journal entry** A journal entry that involves more than one debit or more than one credit or both.

As the journal entry illustrates, more than two accounts can be involved in recording a transaction. This type of entry is called a **compound journal entry**.

Because revenues increase owners equity, the accounting equation shows:

| Assets | = | Liabilities | + | Owners Equity (Revenues) |
|---|---|---|---|---|
| (increase $350) | | (no change) | | (increase $350) |

The detailed effect of this transaction and of each of the following transactions is summarized in Exhibit 3-5 on page 100.

**EXAMPLE 2** One of your customers asks if you will plant some shrubs in her backyard. You mention that you have some shrubs and describe them to her; she is thrilled that you have just the shrubs she wants, thereby saving her a trip to the greenhouse. You use one-half of your inventory of shrubs in this customer s yard, and it takes you three hours to complete the job. She pays you in cash. In this instance, we are dealing with two different types of revenue profit from the sale of the shrubs and revenue from your labor. Let s deal with each type of revenue separately.

***Sale of Shrubs*** Sales, whether made on account or for cash, require entries that reflect not only the sale, but also the cost of the inventory sold. The cost of goods sold is an expense and, as such, is offset with the sales revenue to determine the profitability of sales transactions. The special procedures for handling inventory are described in Chapter 7. It is sufficient here to show an example of the impact of the transaction on the accounting equation.

In this example, you charged your customer $90 for one-half of the shrubs you purchased earlier.

| | | | |
|---|---|---|---|
| assets (+) | Cash | 90 | |
| revenues (+) [equity (+)] | Sales Revenue | | 90 |
| | *Sold inventory for cash.* | | |
| expenses (+) [equity (−)] | Cost of Goods Sold | 75 | |
| assets (−) | Inventory | | 75 |
| | *To record the cost of inventory sold and to reduce inventory for its cost.* | | |

In this example, inventory costing you $75 is being sold for $90. The effect on the accounting equation for each transaction is:

Could the two journal entries relating to the sale of inventory be combined into one journal entry?

*Sales on Account*

| Assets | = | Liabilities | + | Owners Equity (Revenues) |
|---|---|---|---|---|
| (increase $90) | | (no change) | | (increase $90) |

*Cost of Goods Sold*

| Assets | = | Liabilities | + | Owners Equity (Expenses) |
|---|---|---|---|---|
| (decrease $75) | | (no change) | | (decrease $75) |

***Labor for Planting*** In addition to making a profit on the sale of the shrubs, you also generated revenue planting them. The journal entry to record this revenue is:

| | | | |
|---|---|---|---|
| assets (+) | Cash | 45 | |
| revenues (+) [equity (+)] | Landscaping Revenue | | 45 |
| | *To record revenue for landscaping services.* | | |

The effect of the transaction on the accounting equation is:

| Assets | = | Liabilities | + | Owners Equity (Revenues) |
|---|---|---|---|---|
| (increase $45) | | (no change) | | (increase $45) |

**EXAMPLE 3** In addition to expenses relating to the sale of inventory, other expenses are also incurred in operating a business. Examples include gas for your lawnmower and your truck and the wages you agreed to pay your little brother for working for you (Mom said you had to let him help). The following journal entries illustrate how these expenses would be accounted for:

| | | | |
|---|---|---|---|
| expenses (+) [equity (−)] | Gasoline Expense | 50 | |
| assets (−) | Cash | | 50 |
| | *Paid cash for gas for the truck and the mower.* | | |
| expenses (+) [equity (−)] | Wages Expense | 60 | |
| assets (−) | Cash | | 60 |
| | *Paid wages expense.* | | |

The effect on the accounting equation of the gasoline expense is:

| Assets | = | Liabilities | + | Owners Equity (Expense) |
|---|---|---|---|---|
| (decrease $50) | | (no change) | | (decrease $50) |

The entry for Wages Expense affects the equation in the same manner, the only difference being the amount, $60.

## Collecting Cash and Paying Obligations

Obviously, once merchandise or services are sold on account, the receivables must be collected. The cash received is generally used to meet daily operating expenses and to pay other obligations. Excess cash can be reinvested in the business or distributed to the owners as a return on their investment.

**EXAMPLE 1** The collection of accounts receivable is an important aspect of most businesses. Receivables are created when you allow certain customers to pay for your services at a later date. When receivables are collected, that asset is reduced and cash is increased, as shown here.

| | | | |
|---|---|---|---|
| assets (+) | Cash | 80 | |
| assets (−) | Accounts Receivable | | 80 |
| | *Collected $80 of receivables.* | | |

The effect of collecting the receivables on the accounting equation is:

| Assets | = | Liabilities | + | Owners Equity |
|---|---|---|---|---|
| (increase $80; decrease $80) | | (no change) | | (no change) |

Note that no revenue is involved here. Revenue is recorded when the original sales transaction creates the accounts receivable. The cash collection on account merely involves exchanging one asset for another.

**EXAMPLE 2** Remember that lawnmower and gas can you purchased on account? Well, now you have to pay for them. The entry to record the payment of obligations with cash is:

| | | | |
|---|---|---|---|
| liabilities (−) | Accounts Payable | 250 | |
| assets (−) | Cash | | 250 |
| | *Paid $250 for the lawnmower and gas can previously purchased.* | | |

After payment of accounts payable, the accounting equation shows:

| Assets | = | Liabilities | + | Owners Equity |
|---|---|---|---|---|
| (decrease $250) | | (decrease $250) | | (no change) |

Remember that two parties are always involved in exchange transactions. What one buys, the other sells. When sales are on credit, the seller will record a receivable and the buyer will record a payable. The two accounts are inversely related. The seller of merchandise records a receivable and a sale, and simultaneously records an expense for the cost of goods sold and a reduction of inventory (as in Example 2 on page 96). The buyer records the receipt of the merchandise and, at the same time, records an obligation to pay the seller at some future time. When payment is made, the buyer reduces Accounts Payable and Cash (as in this example), whereas the seller increases Cash and reduces Accounts Receivable (as in Example 1).

**EXAMPLE 3** On page 92, we showed the entry required when cash was borrowed from the bank. In that entry, you borrowed $2,000 to be paid over 12 months. Suppose you are required to make monthly loan payments of $178 with a portion of each payment being attributed to interest and a portion to reducing the liability just like a mortgage on a house. As the following compound journal entry shows, a note payable or similar obligation requires an entry for payment, as well as for the interest due. Note that interest is the amount charged for using money, as will be more fully explained in later chapters.

liabilities (−)
expenses (+) [equity (−)]
assets (−)

| | | |
|---|---|---|
| Notes Payable | 158 | |
| Interest Expense | 20 | |
| Cash | | 178 |
| *Paid first monthly payment on note with interest ($2,000 × 0.12 × 1/12).* | | |

Analysis of this transaction reveals that assets have decreased for two reasons. First, a portion of a liability has been paid with cash. Second, interest expense at 12% for one month on the note payable has been paid. This relationship will generally be present in most long-term and some short-term liability transactions. Since the interest charge is an expense and decreases owners equity, the impact of the entry on the accounting equation is:

| Assets | = | Liabilities | + | Owners Equity (Expense) |
|---|---|---|---|---|
| (decrease $178) | | (decrease $158) | | (decrease $20) |

**EXAMPLE 4** Recall that you obtained financing in two ways to start your business investors (you, Mom, and Dad) and the bank. In the previous journal entry, we illustrated how the bank receives a return on its investment. Well, Mom and Dad would like a return as well. Corporations that are profitable generally pay dividends to their stockholders. Dividends represent a distribution to the stockholders of part of the earnings of a company. The following entry illustrates the payment of a cash dividend:

Why are dividends NOT considered to be an expense?

dividends (+) [equity (−)]
assets (−)

| | | |
|---|---|---|
| Dividends | 50 | |
| Cash | | 50 |
| *Paid a $50 cash dividend.* | | |

As noted earlier, dividends, like revenues and expenses, affect owners equity. Unlike revenues and expenses, dividends are a distribution of profits and, therefore, are not considered in determining net income. Because dividends reduce the retained earnings accumulated by a corporation, they decrease owners equity. The payment of a $50 dividend affects the accounting equation as follows:

| Assets | = | Liabilities | + | Owners Equity (Dividends) |
|---|---|---|---|---|
| (decrease $50) | | (no change) | | (decrease $50) |

See Exhibit 3-5 for a summary of the transactions shown in this chapter and their effect on the accounting equation.

## A Note on Journal Entries

When preparing a journal entry, a systematic method may be used in analyzing every transaction. A journal entry involves a three-step process:

1. Identify which accounts are involved.
2. For each account, determine if it is increased or decreased.
3. For each account, determine by how much it has changed.

**fyi**

Many students have a little trouble getting used to debits, credits, and journal entries. So you are not alone if you are feeling a little overwhelmed. But remember, riding a bike wasn t easy the first time either. Like riding a bike, you will soon find that debits, credits, and journal entries aren t that difficult.

The answer to step 1 tells you if the accounts involved are asset, liability, or owners equity accounts. The answer to step 2, when considered in light of your answer to step 1, tells you if the accounts involved are to be debited or credited. Consider the instance where $25,000 is borrowed from a bank. The two accounts involved are Cash and Notes Payable. Cash increased, and since Cash is an asset and assets increase with debits, then Cash must be debited. Notes Payable increased (we owe more money), and since Notes Payable is a liability and liabilities increase with credits, then Notes Payable must be credited. The answer to step 3 completes the journal entry. Cash is debited for $25,000, and Notes Payable is credited for $25,000.

This three-step process will always work, even for complex transactions. Consider the case where inventory costing $60,000 is sold on account for $75,000. Using the three-step process results in the following:

1. *Step 1:* What accounts are involved?
   Accounts Receivable (an asset), Inventory (an asset), Cost of Goods Sold (an expense part of owners equity), and Sales Revenue (a revenue account part of owners equity).
2. *Step 2:* Did the accounts increase or decrease?
   Accounts Receivable increased (customers owe us more money). Since Accounts Receivable is an asset, it is increased with a debit.
   Inventory decreased (we don t have it anymore). Since Inventory is an asset, it is decreased with a credit.
   Cost of Goods Sold increased (an expense causing owners equity to decrease). Since owners equity decreases with a debit, Cost of Goods Sold must be debited.
   Sales Revenue increased (a revenue causing owners equity to increase). Since owners equity increases with a credit, Sales Revenue must be credited.
3. *Step 3:* By how much did each account change?
   The answer to step 3 results in the following journal entries:

| | | |
|---|---|---|
| Accounts Receivable | 75,000 | |
| Sales Revenue | | 75,000 |
| Cost of Goods Sold | 60,000 | |
| Inventory | | 60,000 |

## to summarize

Journal entries are used to summarize the effects of business transactions. Journal entries are prepared or analyzed by answering three questions: (1) What accounts are involved? (2) Did those accounts increase or decrease? (3) By how much did each account change? By correctly answering these three questions, transactions will be properly accounted for, and the accounting equation will always balance.

**exhibit 3-5** Summary of Transactions

| | | ASSETS | | | | | = | LIABILITIES | |
|---|---|---|---|---|---|---|---|---|---|
| | Cash | Accounts Receivable | Inventory | Equipment | Supplies | Truck | | Accounts Payable | Notes Payable |
| Balance | $2,870 | | $150 | $250 | $180 | $800 | = | $250 | $2,000 |
| Revenue from lawn care | 270 | 80 | | | | | | | |
| Sold inventory for cash | 90 | | −75 | | | | | | |
| Revenue from landscaping | 45 | | | | | | | | |
| Paid for gasoline | −50 | | | | | | | | |
| Paid wages | −60 | | | | | | | | |
| Collected receivables | 80 | −80 | | | | | | | |
| Paid accounts payable | −250 | | | | | | | −250 | |
| Paid loan payment | −178 | | | | | | | | −158 |
| Paid dividend | −50 | | | | | | | | |
| Total | $2,767 | $ 0 | $ 75 | $250 | $180 | $800 | = | $ 0 | $1,842 |

## business environment essay

**A Bookkeeping Attack Starts a War**

Tom Clancy typed the first draft of his first novel, *The Hunt for Red October,* on an IBM Selectric typewriter while still holding down his full-time job as an insurance agent. The book was published in October 1984, and sales took off when it became known that the book was President Ronald Reagan s favorite. To date, Clancy has published a total of seven novels featuring the reluctant hero Jack Ryan, and the stories have been so popular that Clancy now commands a record $25 million advance per book.

In *The Hunt for Red October,* Jack Ryan, who was trained as a historian, is a part-time analyst for the CIA. By the sixth novel in the series, *Debt of Honor,* a well-earned reputation for being a good man in a storm has landed Ryan, against his wishes, in the position of serving as the president s National Security Adviser. Jack Ryan s abilities are tested as an international crisis is touched off when a group of Japanese businessmen gain control of their government and determine that the only way to save the Japanese economy is through neutralization of U.S. power in the Pacific.

The first act of war against the United States is an attack not on a military target but instead on the book-

| + | OWNERS EQUITY | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Retained Earnings | | | | | | | |
| | Capital Stock | Lawn Care Revenue | Sales Revenue | Landscaping Revenue | Cost of Goods Sold* | Gasoline Expense* | Wages Expense* | Interest Expense* | Dividends* |
| + | $2,000 | | | | | | | | |
| | | 350 | | | | | | | |
| | | | 90 | | −75 | | | | |
| | | | | 45 | | | | | |
| | | | | | | −50 | | | |
| | | | | | | | −60 | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | −20 | |
| | | | | | | | | | −50 |
| + | $2,000 | $350 | $90 | $45 | −$75 | −$50 | −$60 | −$20 | −$50 |

*Recall that an increase in these accounts actually decreases owners equity, hence the − (minus sign).

keeping system used by U.S. stock exchanges. A computer virus, injected into the program used to record trades on all the major U.S. stock exchanges, is activated at noon on Friday. The records of all trades made after that time are eliminated with this result:

> No trading house, institution, or private investor could know what it had bought or sold, to or from whom, or for how much, and none could therefore know how much money was available for other trades, or for that matter, to purchase groceries over the weekend. (Tom Clancy, *Debt of Honor,* p. 312)

The uncertainty created by the destruction of the stock exchange bookkeeping records threatens to throw the U.S. economy into a tailspin and distract U.S. policy makers from other moves being made by Japan in the Pacific. Jack Ryan saves the world as we know it and restores the U.S. economy to sound footing by . . . well, it wouldn t be fair to say you ll have to read the book. Suffice it to say that a key part of the restoration plan is the repair of the stock exchange bookkeeping system.

**4**

Summarize the resulting journal entries through posting and prepare a trial balance (step three of the accounting cycle).

## POSTING JOURNAL ENTRIES AND PREPARING A TRIAL BALANCE

**posting** The process of transferring amounts from the journal to the ledger.

Once transactions have been analyzed and recorded in a journal, it is necessary to classify and group all similar items. This is accomplished by the bookkeeping procedure of **posting** all the journal entries to appropriate accounts. As indicated earlier, accounts are records of like items. They show transaction dates, increases and decreases, and balances. For example, all increases and decreases in cash arising from transactions recorded in the journal are accumulated in one account called Cash. Similarly, all sales transactions are grouped together in the sales revenue account.

Posting is no more than sorting all journal entry amounts by account and copying those amounts to the appropriate account. No analysis is needed; all the necessary analysis is performed when the transaction is first recorded in the journal.

**ledger** A book of accounts in which data from transactions recorded in journals are posted and thereby summarized.

All accounts are maintained in an accounting record called the general ledger. A **ledger** is a book of accounts. Exhibit 3-6 shows how the three cash transactions in the general journal would be posted to the cash account in the general ledger, with arrows depicting the posting procedures. Observe that a number has been inserted in the posting reference column in both books. This number serves as a cross-reference between the general journal and the accounts in the general ledger. In the journal, it identifies the account to which the journal entry has been posted. In the ledger, it identifies the page on which the entry appears in the general journal. For example, the GJ1 notation in the cash account for the July 1 entry means that the $2,000 has been posted from page 1 of the general journal. As you will discover, these posting references are useful in tracking down mistakes. With a computer system, the software automatically generates these posting references.

**chart of accounts** A systematic listing of all accounts used by a company.

A particular company will have as many (or as few) accounts as it needs to provide a reasonable classification of its transactions. The list of accounts used by a company is known as its **chart of accounts**. The normal order of a chart of accounts is assets (current and long-term), then liabilities (current and long-term), followed by owners equity, sales, and expenses. Exhibit 3-7 shows some accounts that might appear in a typical company s chart of accounts.

**caution**

Common mistakes when manually posting include posting a debit to the credit side of an account, transposing numbers (e.g., a 45 magically becomes a 54), and posting to the wrong account (e.g., Supplies instead of Inventory). The lesson be very careful or mistakes will creep into your work. Thankfully, posting is a task done almost exclusively by computers these days.

### Determining Account Balances

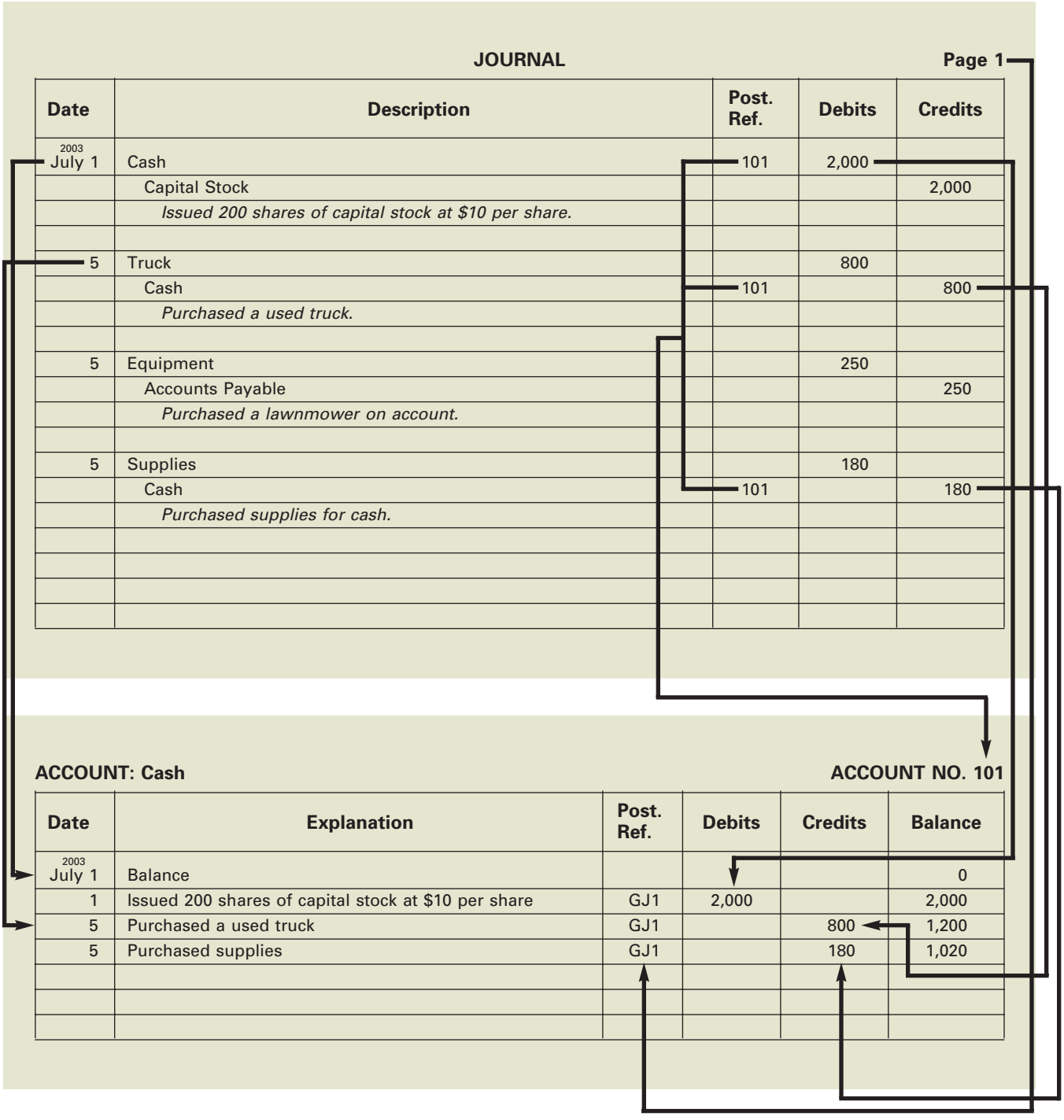
At the end of an accounting period, the accounts in the general ledger are reviewed to determine each account s balance. Asset, expense, and dividend accounts normally have debit balances; liability, owners equity, and revenue accounts normally have credit balances. In other words, the balance is normally on the side that increases the account.

To illustrate how to determine an account balance, consider the following T-account depicting all the cash transactions from our landscaping business (with dates being added). The beginning cash account balance plus all Cash debit entries, less total credits to Cash, equals the ending balance in the cash account.

**Cash**

| | | | |
|---|---|---|---|
| Beg. Bal. | 0 | | |
| 7/1 | 2,000 | | |
| 7/1 | 2,000 | 7/5 | 800 |
| 7/9 | 270 | 7/5 | 180 |
| 7/14 | 90 | 7/7 | 150 |
| 7/14 | 45 | 7/18 | 50 |
| 7/30 | 80 | 7/23 | 60 |
| | | 7/31 | 250 |
| | | 7/31 | 178 |
| | | 7/31 | 50 |
| | 4,485 | | (1,718) |
| | (1,718) | | |
| End. Bal. | 2,767 | | |

exhibit 3-6 Posting to the General Ledger



JOURNAL Page 1

| Date | Description | Post. Ref. | Debits | Credits |
|---|---|---|---|---|
| 2003 July 1 | Cash | 101 | 2,000 | |
| | Capital Stock | | | 2,000 |
| | *Issued 200 shares of capital stock at $10 per share.* | | | |
| 5 | Truck | | 800 | |
| | Cash | 101 | | 800 |
| | *Purchased a used truck.* | | | |
| 5 | Equipment | | 250 | |
| | Accounts Payable | | | 250 |
| | *Purchased a lawnmower on account.* | | | |
| 5 | Supplies | | 180 | |
| | Cash | 101 | | 180 |
| | *Purchased supplies for cash.* | | | |

ACCOUNT: Cash ACCOUNT NO. 101

| Date | Explanation | Post. Ref. | Debits | Credits | Balance |
|---|---|---|---|---|---|
| 2003 July 1 | Balance | | | | 0 |
| 1 | Issued 200 shares of capital stock at $10 per share | GJ1 | 2,000 | | 2,000 |
| 5 | Purchased a used truck | GJ1 | | 800 | 1,200 |
| 5 | Purchased supplies | GJ1 | | 180 | 1,020 |

## Illustration of the First Three Steps in the Accounting Cycle

We have introduced the first three steps in the accounting cycle. A simple illustration will help reinforce what you have learned about the relationship of assets, liabilities, and owners equity, as well as revenues, expenses, and dividends, and the mechanics of double-entry accounting. Katherine Kohler established the Double K Corporation in 2003. The following transactions occurred.

**exhibit 3-7** Chart of Accounts for a Typical Company

**Assets (100 199)**

*Current Assets (100 150):*
101 Cash
103 Notes Receivable
105 Accounts Receivable
107 Inventory
108 Supplies
*Long-Term Assets (151 199):*
151 Land
152 Buildings
154 Office Furniture or Equipment

**Liabilities (200 299)**

*Current Liabilities (200 219):*
201 Notes Payable
202 Accounts Payable
203 Salaries Payable
204 Interest Payable
206 Income Taxes Payable
*Long-Term Liabilities (220 239):*
222 Mortgage Payable

**Owners Equity (300 399)**

301 Capital Stock
330 Retained Earnings

**Sales (400 499)**

400 Sales Revenue

**Expenses (500 599)**

500 Cost of Goods Sold
501 Sales Salaries and Commissions
523 Rent Expense
525 Travel Expense
528 Advertising Expense
551 Officers Salaries
553 Administrative Salaries
570 Payroll Taxes
571 Office Supplies Expense
573 Utilities Expense
578 Office Equipment Rent Expense
579 Accounting and Legal Fees

a. Initial capital contribution of $20,000, for which she received 1,000 shares of capital stock.
b. Double K Corporation paid $10,000 cash for inventory.
c. Borrowed $20,000 from a bank to buy some land, signing a long-term note with the bank.
d. Land was purchased for $25,000 cash.
e. During the year 2003, Double K Corporation sold 20%, or $2,000, of the inventory purchased. The company sold that inventory for $3,200, and the sale was originally made on credit.
f. The company paid $200 in selling expenses and $100 in miscellaneous expenses.
g. The company collected the full amount of the account receivable in cash.

The inventory purchases are verified by invoices showing the actual items purchased, dates, amounts, and so forth. There is a $20,000 note payable to the bank. Other business documents indicate the sale of inventory and the expenses incurred. Through analysis of these transactions and supporting documents (step 1), the pertinent facts are obtained and the transactions are recorded in a journal (step 2). The journal entries to record the transactions of Double K Corporation are as follows. (Note that letters are used in place of dates.)

| Business Transaction | Account Category and Direction | Journal Entries | Debits | Credits |
|---|---|---|---|---|
| Issued stock | assets (+) | (a) Cash | 20,000 | |
| | owners equity (+) | (a) Capital Stock | | 20,000 |
| | | *Issued 1,000 shares of capital stock for $20,000.* | | |
| Purchased inventory | assets (+) | (b) Inventory | 10,000 | |
| | assets (−) | (b) Cash | | 10,000 |
| | | *Purchased $10,000 of inventory for cash.* | | |

*(continued)*

| Business Transaction | Account Category and Direction | Journal Entries | Debits | Credits |
|---|---|---|---|---|
| Borrowed money | assets (+) | (c) Cash | 20,000 | |
| | liabilities (+) | (c) Notes Payable | | 20,000 |
| | | *Borrowed $20,000 from a bank.* | | |
| Purchased land | assets (+) | (d) Land | 25,000 | |
| | assets (−) | (d) Cash | | 25,000 |
| | | *Purchased land for cash.* | | |
| Sold inventory | assets (+) | (e) Accounts Receivable | 3,200 | |
| | revenues (+) | (e) Sales Revenue | | 3,200 |
| | | *Sold inventory for $3,200 on account.* | | |
| | expenses (+) | (e) Cost of Goods Sold | 2,000 | |
| | assets (−) | (e) Inventory | | 2,000 |
| | | *To record the cost of goods or inventory sold.* | | |
| Paid expenses | expenses (+) | (f) Selling Expenses | 200 | |
| | expenses (+) | (f) Miscellaneous Expenses | 100 | |
| | assets (−) | (f) Cash | | 300 |
| | | *Paid selling and miscellaneous expenses.* | | |
| Collected cash | assets (+) | (g) Cash | 3,200 | |
| | assets (−) | (g) Accounts Receivable | | 3,200 |
| | | *Collected accounts receivable.* | | |

Next, the transactions are posted to the ledger accounts (step 3, part 1). T-accounts are used to illustrate this process, with the letters (a) through (g) showing the cross-references to the journal entries. A balance is shown for the end of the period. (Where only one transaction is involved, the amount of the transaction is also the account balance.)

**Cash**

| | | | |
|---|---|---|---|
| (a) | 20,000 | (b) | 10,000 |
| (c) | 20,000 | (d) | 25,000 |
| (g) | 3,200 | (f) | 300 |
| Bal. | 7,900 | | |

**Accounts Receivable**

| | | | |
|---|---|---|---|
| (e) | 3,200 | (g) | 3,200 |
| Bal. | 0 | | |

**Inventory**

| | | | |
|---|---|---|---|
| (b) | 10,000 | (e) | 2,000 |
| Bal. | 8,000 | | |

**Land**

| | |
|---|---|
| (d) | 25,000 |

**Notes Payable**

| | |
|---|---|
| | (c) 20,000 |

**Capital Stock**

| | |
|---|---|
| | (a) 20,000 |

**Sales Revenue**

| | |
|---|---|
| | (e) 3,200 |

**Cost of Goods Sold**

| | |
|---|---|
| (e) | 2,000 |

**Selling Expenses**

| | |
|---|---|
| (f) | 200 |

**Miscellaneous Expenses**

| | |
|---|---|
| (f) | 100 |

The effect of these transactions can also be visualized using a spreadsheet format as shown in Exhibit 3-8.

**trial balance** A listing of all account balances; provides a means of testing whether total debits equal total credits for all accounts.

After the account balances have been determined, a trial balance is usually prepared (step 3, part 2). A **trial balance** lists each account with its debit or credit balance, as shown in Exhibit 3-9. By adding all the debit balances and all the credit balances, the accountant can see whether total debits equal total credits. Even if the trial balance does show total debits equal to total credits, there may be errors. A transaction may have been omitted completely, or it may have been recorded incorrectly or posted to the wrong account. These types of errors will not be discovered by prepar-

**exhibit 3-8** Effects of Business Transactions on the Accounting Equation

| | ASSETS | | | | = | LIABILITIES | + | OWNERS EQUITY | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transaction # | Cash | Inventory | Land | Accounts Receivable | | Notes Payable | | Capital Stock | Retained Earnings | | | |
| Beginning Balance | $ 0 | $ 0 | $ 0 | $ 0 | = | $ 0 | + | $ 0 | Sales Revenue | Cost of Goods Sold* | Selling Expenses* | Misc. Expenses* |
| a | 20,000 | | | | | | | 20,000 | | | | |
| b | −10,000 | 10,000 | | | | | | 0 | | | | |
| c | 20,000 | | | | | 20,000 | | | | | | |
| d | −25,000 | | 25,000 | | | | | | | | | |
| e | | −2,000 | | 3,200 | | | | | 3,200 | −2,000 | | |
| f | −300 | | | | | | | | | | −200 | −100 |
| g | 3,200 | | | −3,200 | | | | | | | | |
| Total | $ 7,900 | $ 8,000 | $25,000 | $ 0 | = | $20,000 | + | $20,000 | $3,200 | −$2,000 | −$200 | −$100 |

*Recall that an increase in these accounts actually decreases owners equity, hence the − (minus sign).

ing a trial balance; additional analysis would be required. In this case, total debits equal total credits. Thus, the accounting equation is in balance. The balances are taken from each ledger account.

Students frequently mistake a trial balance and the balance sheet for one another. In fact, they are very different reports. A trial balance is strictly an internal document used to summarize all of the account balances (assets, liabilities, owners equity, revenues, expenses, and dividends) in a company s accounting system. Few people outside a company s accounting department ever see the trial balance; most businesspeople never see a real trial balance during their

**exhibit 3-9** Trial Balance

**Double K Corporation**
**Trial Balance**
**December 31, 2003**

| | Debits | Credits |
|---|---|---|
| Cash | $ 7,900 | |
| Accounts Receivable | 0 | |
| Inventory | 8,000 | |
| Land | 25,000 | |
| Notes Payable | | $20,000 |
| Capital Stock | | 20,000 |
| Sales Revenue | | 3,200 |
| Cost of Goods Sold | 2,000 | |
| Selling Expenses | 200 | |
| Miscellaneous Expenses | 100 | |
| Totals | $43,200 | $43,200 |

entire business career. The balance sheet, on the other hand, is a summary document that is frequently provided to interested parties both inside and outside a company.

From the data in the trial balance, an income statement and a balance sheet can be prepared. Exhibit 3-10 shows these two financial statements for Double K Corporation. Notice that there is no retained earnings account in the trial balance but there is one on the balance sheet. The reason for this is that all the income statement accounts such as Revenue, Cost of Goods Sold, and expenses are eventually accumulated into Retained Earnings. That is, earnings are re-

**exhibit 3-10** Income Statement and Balance Sheet

**Double K Corporation**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Sales revenue | | $3,200 |
| Expenses: | | |
| Cost of goods sold | $2,000 | |
| Selling expenses | 200 | |
| Miscellaneous expenses | 100 | 2,300 |
| Net income | | $ 900 |
| EPS ($900 ÷ 1,000 shares) | | $ 0.90 |

**Double K Corporation**
**Balance Sheet**
**December 31, 2003**

| Assets | | Liabilities and Owners Equity | |
|---|---|---|---|
| Cash | $ 7,900 | Notes payable | $20,000 |
| Inventory | 8,000 | Capital stock (1,000 shares) | 20,000 |
| Land | 25,000 | Retained earnings | 900* |
| | | Total liabilities and | |
| Total assets | $40,900 | owners equity | $40,900 |

*Beginning retained earnings + net income − dividends.

## business environment essay

**Nonfinancial Data** Company annual reports provide more than just the financial statements and other financial information. They usually include nonfinancial information that provides insights into unusual circumstances, new trends, or significant changes, or that relate to important social issues, such as environmental concerns.

For example, **PHILIP MORRIS, INC.**, devoted more than seven pages in its 1999 annual report to litigation. In 1999, 510 new cases relating to the company s tobacco business were filed against Philip Morris. In its annual report, the company details the specific charges, the company s defense, the status of various cases, and the state of ongoing negotiations with the government.

Similarly, **EXXONMOBIL** s 1999 annual report devotes a page to discussing the company s year 2000 plan and includes a brief note about the euro (the new currency of much of Europe).

**Sources:** The 1999 annual reports of Philip Morris and ExxonMobil.

exhibit 3-11 Statement of Cash Flows

**Double K Corporation**
**Statement of Cash Flows**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Operating activities: | | |
| Collections from customers | $ 3,200 | |
| Purchase of inventory | (10,000) | |
| Paid expenses | (300) | $ (7,100) |
| Investing activities: | | |
| Purchased land | | (25,000) |
| Financing activities: | | |
| Issued stock | $20,000 | |
| Borrowed from bank | 20,000 | 40,000 |
| Net increase in cash | | $ 7,900 |
| Beginning cash balance | | 0 |
| Ending cash balance | | $ 7,900 |

flected on the income statement. The business then decides the amount of those earnings to be retained. Those earnings that are to be retained are then disclosed on the balance sheet.

Also, the statement of cash flows can be prepared by categorizing the items in the cash account as operating, investing, or financing, as shown in Exhibit 3-11.

Two final notes: First, the preparation of financial statements is rarely so simple. In reality, the procedure also involves the adjustment of some ledger accounts, which need to be brought current before they can be included in the balance sheet or the income statement. In Chapter 4, we will explain how accounts are adjusted (step 4, part 1) so that the financial statements will accurately reflect the current financial position and operating results of an enterprise.

Second, net income does not usually equal the ending retained earnings balance. Only in the first year of a company s operations would this be the case. Double K Corporation began operations in 2003 and paid no dividends during the year; so, its $900 net income on the income statement equals the retained earnings figure on the balance sheet. In future years, the figures would be different, since retained earnings is an accumulation of earnings from past years adjusted for dividends and other special items.

## to summarize

Once journal entries have been made and posted to the related accounts, account balances are computed by summing the debit and credit entries in each account. A trial balance is prepared by listing each account along with its balance. An income statement and a balance sheet can be prepared from this trial balance. A statement of cash flows is prepared by analyzing the inflows and outflows of cash as detailed in the cash account.

**5** Describe how technology has affected the first three steps of the accounting cycle.

## WHERE DO COMPUTERS FIT IN ALL THIS?

Students often ask, Do I really need to know the difference between a debit and a credit? Haven t computers taken care of that? Computers have greatly facilitated a business s abil-

ity to quickly process huge amounts of information without making mathematical errors. Most computers can make millions of calculations per second and produce more documents in ten minutes than a person could in an entire week. The time spent posting journal entries and summarizing accounts into a trial balance has been greatly reduced as a result of computers.

But computers still can t think. That s your job. Walk up to a computer terminal and show it a sales invoice and the computer will just sit there and wait. Wait for what? For the answers to three questions: (1) What accounts are involved? (2) Did those accounts increase or decrease? (3) By how much did each account change?

Let s consider how the best-selling money management software package, Quickenfi, has changed the accounting process. Quicken works a lot like a check register. For each check, you indicate the date, the check number, the payee, and the amount. Quicken then prompts you to indicate the nature of the expenditure by selecting from a list of accounts. For example, if the expenditure relates to your purchase of groceries, you would select the account Food. Thus, all your transactions relating to Food will be grouped together, allowing you to quickly determine all food expenditures.

Now let s review what Quicken has done. First of all, since you indicated the transaction involved a check, Quicken knows that cash decreased. Quicken is programmed to know that when cash decreases, it involves a credit to the cash account. Quicken also has been programmed to know that debits have to equal credits, and since Cash was credited, the program knows that something was debited. Since you indicated Food (an expense) was the other account, Quicken debits that account, causing your expense account to increase (we now know that expenses increase with debits). Instead of telling Quicken which accounts to debit and credit, you are required to identify the accounts (question 1) and indicate if they increased or decreased (question 2). Quicken is able to determine, based on the answer to these two questions, which accounts were debited and which accounts were credited.

So has Quicken fundamentally changed the accounting process? No. It has increased the accuracy and speed with which the posting process is done, as well as the speed with which a variety of reports can be prepared. Quicken has also eliminated the need for the user to specify debit or credit. Because computers are so fast, the two-step process of identifying accounts and the direction of their change can be done as quickly as you can say credit Cash. So why don t accountants get rid of these 500-year-old terms, debit and credit? The reason is that all accountants are familiar with and comfortable using these terms. When someone says credit Cash, accountants everywhere know exactly what that means. Thus, debit and credit provide a useful shorthand method of communication.

It should be noted that computers also bring with them several disadvantages. The acronym GIGO (garbage in, garbage out) refers to the problems that result when data are entered incorrectly. If you tell the computer the wrong account or wrong amount, all the related accounts and reports will be wrong. If bookkeepers or accountants had been doing the posting, they might have caught an unrealistic figure or account and corrected the mistake at its source; computers accept data without question.

A related problem has to do with fixing an error once it has been identified. Unlike someone familiar with the accounting process, a computer cannot grasp the double-entry nature of accounting and realize that, for example, an incorrect amount may be posted to two accounts, not just one. As an example, suppose a customer calls and notifies you of an error in her account a sale to her was incorrectly recorded as $100 instead of $10. You can correct the customer s account by making a $90 adjustment to Accounts Receivable, but Sales would need to be adjusted by $90 as well. A computer couldn t extrapolate this and would end up overlooking this Sales adjustment.

The computer has enhanced step 3 of the accounting cycle summarizing. In fact, only in the smallest of businesses will you find the posting of journal entries and the preparation of a trial balance being done by hand. But in every business, from the largest to the smallest, you will find accountants still actively involved in analyzing transactions and turning those transactions into journal entries and eventually into useful accounting reports.

## to summarize

The computer has changed certain aspects of the accounting cycle. The posting process has been substantially improved through the use of computers. In addition, computers have made the preparation of reports and statements easier. But computers have not replaced the need to analyze transactions and determine their effect on the accounting equation.

## review of learning objectives

**1 Understand the process of transforming transaction data into useful accounting information.** The objective of the accounting process is to gather and transform transaction data into useful information that measures and communicates the results of business activity. The accounting system used to keep track of the many financial activities of a business should be tailor-made for that business and may be a manual or an automated system, depending on the organization s needs.

**2 Analyze transactions and determine how those transactions affect the accounting equation (step one of the accounting cycle).** The procedures for processing accounting data are based on double-entry accounting and the fundamental accounting equation: Assets = Liabilities + Owners Equity. Revenues increase retained earnings, whereas expenses and dividends decrease retained earnings. Thus, these accounts have a direct impact on the amount of owners equity. In terms of the increase/decrease relationship of accounts, assets, expenses, and dividends are increased by debits; liabilities, owners equity, and revenues are increased by credits. The double-entry system of accounting ensures that the accounting equation will always balance because debit entries require equal credit entries; that is, total debits must always equal total credits when transactions are properly recorded.

**3 Record the effects of transactions using journal entries (step two of the accounting cycle).** The effects of business events are recorded in the accounting system using journal entries. Journal entries detail the accounts involved in a transaction, whether the accounts increased or decreased, and the amount by which each account is affected. Each journal entry requires an equal amount of debits and credits. This equality ensures that the accounting equation will always be in balance.

**4 Summarize the resulting journal entries through posting and prepare a trial balance (step three of the accounting cycle).** Once journal entries are made, they are posted to individual accounts. The posting process involves simply copying each debit and credit from a journal entry into the associated account. A trial balance can be prepared to ensure that debits equal credits and that the accounting equation is in balance. From the trial balance, the primary financial statements can be prepared.

**5 Describe how technology has affected the first three steps of the accounting cycle.** Computers have changed the speed at which journal entries are processed through the accounting system. In most accounting systems, the posting process is done using computers. Computers ensure that no errors are made in transferring amounts from the journal entries to the accounts. Computers are also able to determine account balances and prepare reports quickly. Accountants are still required for the analysis and input of information into the accounting system.

## key terms and concepts

account 84
accounting cycle 79
business documents 80
chart of accounts 102
compound journal entry 96
credit 86
debit 86
dividends 88
journal 90
journal entry 90
journalizing 90
ledger 102
posting 102
T-account 86
trial balance 105

## review problem

**The First Three Steps in the Accounting Cycle**

Journal entries are given below for January 2003, the first month of operation for the Svendsen Service Company.

| | | | |
|---|---|---|---|
| Jan. 2 | Cash | 40,000 | |
| | Capital Stock | | 40,000 |
| | *Issued capital stock for cash.* | | |
| 2 | Insurance Expense | 500 | |
| | Cash | | 500 |
| | *Purchased a one-month insurance policy.* | | |
| 2 | Rent Expense | 750 | |
| | Cash | | 750 |
| | *Paid rent for the month of January.* | | |
| 3 | Shop Equipment | 8,000 | |
| | Cash | | 8,000 |
| | *Purchased shop equipment for cash.* | | |
| 4 | Supplies | 3,000 | |
| | Accounts Payable | | 3,000 |
| | *Purchased shop supplies on account.* | | |
| 5 | Automotive Equipment | 11,500 | |
| | Cash | | 3,500 |
| | Notes Payable | | 8,000 |
| | *Purchased a truck. Paid $3,500 cash and issued a 30-day note for the balance.* | | |
| 8 | Cash | 1,750 | |
| | Service and Repair Revenue | | 1,750 |
| | *Received cash for repairs.* | | |
| 9 | Advertising Expense | 300 | |
| | Cash | | 300 |
| | *Paid cash for radio spot announcements.* | | |
| 12 | Automotive Expense | 200 | |
| | Cash | | 200 |
| | *Paid gas, oil, and service costs on the truck.* | | |
| 14 | Accounts Payable | 3,000 | |
| | Cash | | 3,000 |
| | *Paid $3,000 on account.* | | |
| 16 | Accounts Receivable | 1,200 | |
| | Service and Repair Revenue | | 1,200 |
| | *Repaired truck for Acme Drilling Company on account.* | | |
| 18 | Telephone Expense | 75 | |
| | Cash | | 75 |
| | *Paid for installation and telephone service for one month.* | | |
| 19 | Automotive Expense | 180 | |
| | Cash | | 180 |
| | *Paid for minor repairs on the truck.* | | |
| 20 | Cash | 1,000 | |
| | Notes Receivable | 1,450 | |
| | Service and Repair Revenue | | 2,450 |
| | *Collected $1,000 cash from Jones for truck repairs; accepted a 60-day note for the balance.* | | |

*(continued)*

| | | | |
|---|---|---|---|
| Jan. 24 | Repairs and Maintenance Expense | 150 | |
| | Cash | | 150 |
| | *Paid cleaning and painting expenses on the building.* | | |
| 25 | Cash | 1,500 | |
| | Service and Repair Revenue | | 1,500 |
| | *Received cash for repairs and services from Hamilton, Inc.* | | |
| 27 | Supplies | 2,500 | |
| | Cash | | 2,500 |
| | *Purchased shop supplies.* | | |
| 29 | Office Equipment | 1,250 | |
| | Cash | | 1,250 |
| | *Purchased a computer.* | | |
| 30 | Cash | 1,200 | |
| | Accounts Receivable | | 1,200 |
| | *Collected receivables from Acme Drilling Company.* | | |
| 31 | Utilities Expense | 900 | |
| | Cash | | 900 |
| | *Paid the monthly utility bill.* | | |
| 31 | Automotive Expense | 350 | |
| | Cash | | 350 |
| | *Paid for gas, oil, and servicing of the truck.* | | |

*Required:* Set up T-accounts, post all journal entries to the accounts, balance the accounts, and prepare a trial balance.

**Solution** The first step in solving this problem is to set up T-accounts for each item; then post all journal entries to the appropriate ledger accounts, as shown. Once the amounts are properly posted, account balances can be determined.

**Cash**

| | | | |
|---|---|---|---|
| 1/2 | 40,000 | 1/2 | 500 |
| 1/8 | 1,750 | 1/2 | 750 |
| 1/20 | 1,000 | 1/3 | 8,000 |
| 1/25 | 1,500 | 1/5 | 3,500 |
| 1/30 | 1,200 | 1/9 | 300 |
| | | 1/12 | 200 |
| | | 1/14 | 3,000 |
| | | 1/18 | 75 |
| | | 1/19 | 180 |
| | | 1/24 | 150 |
| | | 1/27 | 2,500 |
| | | 1/29 | 1,250 |
| | | 1/31 | 900 |
| | | 1/31 | 350 |
| Bal. | 23,795 | | |

**Notes Receivable**

| | | | |
|---|---|---|---|
| 1/20 | 1,450 | | |

**Accounts Receivable**

| | | | |
|---|---|---|---|
| 1/16 | 1,200 | 1/30 | 1,200 |
| Bal. | 0 | | |

**Supplies**

| | | | |
|---|---|---|---|
| 1/4 | 3,000 | | |
| 1/27 | 2,500 | | |
| Bal. | 5,500 | | |

**Shop Equipment**

| | | | |
|---|---|---|---|
| 1/3 | 8,000 | | |

**Automotive Equipment**

| | | | |
|---|---|---|---|
| 1/5 | 11,500 | | |

**Office Equipment**

| | | | |
|---|---|---|---|
| 1/29 | 1,250 | | |

**Notes Payable**

| | | | |
|---|---|---|---|
| | | 1/5 | 8,000 |

**Accounts Payable**

| | | | |
|---|---|---|---|
| 1/14 | 3,000 | 1/4 | 3,000 |
| | | Bal. | 0 |

**Capital Stock**

| | | | |
|---|---|---|---|
| | | 1/2 | 40,000 |

**Service and Repair Revenue**

| | | | |
|---|---|---|---|
| | | 1/8 | 1,750 |
| | | 1/16 | 1,200 |
| | | 1/20 | 2,450 |
| | | 1/25 | 1,500 |
| | | Bal. | 6,900 |

*(continued)*

**Insurance Expense**

| | | | |
|---|---|---|---|
| 1/2 | 500 | | |

**Rent Expense**

| | | | |
|---|---|---|---|
| 1/2 | 750 | | |

**Advertising Expense**

| | | | |
|---|---|---|---|
| 1/9 | 300 | | |

**Automotive Expense**

| | | | |
|---|---|---|---|
| 1/12 | 200 | | |
| 1/19 | 180 | | |
| 1/31 | 350 | | |
| Bal. | 730 | | |

**Telephone Expense**

| | | | |
|---|---|---|---|
| 1/18 | 75 | | |

**Repairs and Maintenance Expense**

| | | | |
|---|---|---|---|
| 1/24 | 150 | | |

**Utilities Expense**

| | | | |
|---|---|---|---|
| 1/31 | 900 | | |

The final step is to prepare a trial balance to see whether total debits equal total credits for all accounts. List all the accounts with balances; then enter the balance in each account.

**Svendsen Service Company**
**Trial Balance**
**January 31, 2003**

| | Debits | Credits |
|---|---|---|
| Cash | $23,795 | |
| Accounts Receivable | 0 | |
| Notes Receivable | 1,450 | |
| Supplies | 5,500 | |
| Shop Equipment | 8,000 | |
| Automotive Equipment | 11,500 | |
| Office Equipment | 1,250 | |
| Accounts Payable | | $ 0 |
| Notes Payable | | 8,000 |
| Capital Stock | | 40,000 |
| Service and Repair Revenue | | 6,900 |
| Insurance Expense | 500 | |
| Rent Expense | 750 | |
| Advertising Expense | 300 | |
| Automotive Expense | 730 | |
| Telephone Expense | 75 | |
| Repairs and Maintenance Expense | 150 | |
| Utilities Expense | 900 | |
| Totals | $54,900 | $54,900 |

## discussion questions

1. What is the basic objective of the accounting cycle?
2. Explain the first three steps in the accounting cycle.
3. What are the advantages of a computer-based accounting system? Does such a system eliminate the need for human judgment? Explain.
4. In a double-entry system of accounting, why must total debits always equal total credits?
5. Explain the increase/decrease, debit/credit relationship of asset, liability, and owners equity accounts.

6. How are revenues, expenses, and dividends related to the basic accounting equation?
7. In what ways are dividend and expense accounts similar, and in what ways are they different?
8. How does understanding the mechanics of accounting help a businessperson who has no intention of practicing accounting?
9. Distinguish between a journal and a ledger.
10. Assume that Company A buys $1,500 of merchandise from Company B for cash. The merchandise originally cost Company B $1,000. What entries should the buyer and seller make, and what is the relationship of the accounts for this transaction?
11. Indicate how each of the following transactions affects the accounting equation.
    a. Purchase of supplies on account.
    b. Payment of wages.
    c. Cash sales of goods for more than their cost.
    d. Payment of monthly utility bills.
    e. Purchase of a building with a down payment of cash plus a mortgage.
    f. Cash investment by a stockholder.
    g. Payment of a cash dividend.
    h. Sale of goods on account for more than their cost.
    i. Sale of land at less than its cost.
12. What is a chart of accounts? What is its purpose?
13. If a trial balance appears to be correct (debits equal credits), does that guarantee complete accuracy in the accounting records? Explain.
14. What is the difference between a trial balance and a balance sheet?
15. Have computers eliminated the need to analyze transactions? Explain.

## discussion cases

### CASE 3-1

#### HOW DOES MICROSOFT (AND OTHER COMPANIES) DO IT?

**MICROSOFT** s revenues exceeded $19 billion in 1999. These revenues were generated by millions of transactions all over the world in the United States, Canada, Europe, South America, and Asia. What is the process used by Microsoft to transform this tremendous amount of transaction data into summarized information reported to the general public in the form of financial statements?

### CASE 3-2

#### ADVANTAGES AND DISADVANTAGES OF A COMPUTERIZED ACCOUNTING SYSTEM

Your soon-to-be father-in-law owns a small retail store. He has manually kept his business accounting records for over 20 years, but he is currently thinking about switching to a computerized accounting system. What advice would you give him about the advantages and the disadvantages of using a computerized accounting system?

### CASE 3-3

#### WHEN IS A DEBIT A DEBIT?

Your new roommate, Susan, is confused. She has just received a notice from her bank indicating that her account has been debited for the cost of new checks. This has reduced her cash account. Susan just learned in her introductory accounting class that debiting Cash increases the account. She wonders why the bank has reduced her account by debiting it. How can you help Susan understand this situation?

### CASE 3-4

#### UNDERSTANDING THE MECHANICS OF ACCOUNTING

As the CFO (Chief Financial Officer) of Rollins Engineering Company, you are looking for someone to fill the position of office manager. Part of the job description is to maintain the company s accounting records. This means that the office manager must be able to journalize transactions, post them to the ledger accounts, and prepare monthly trial balances. You have just interviewed the first applicant, Jay McMahon, who claims that he has studied accounting. As an initial check on his understanding of the basic mechanics of accounting, you give Jay a list of accounts randomly ordered and with assumed balances and ask him to prepare a trial balance. Jay prepares the following.

| Trial Balance | | |
|---|---|---|
| | **Debits** | **Credits** |
| Accounts Payable | | $ 4,500 |
| Salaries Expense | | 175,000 |
| Consulting Revenues | $269,000 | |
| Cash | 82,100 | |
| Utilities Expense | 12,000 | |
| Accounts Receivable | | 44,000 |
| Supplies | 11,000 | |
| Rent Expense | 30,000 | |
| Capital Stock | | 77,000 |
| Supplies Expense | 33,000 | |
| Office Equipment | 15,000 | |
| Retained Earnings | | 24,000 |
| Other Expenses | 6,400 | |
| Salaries Payable | 34,000 | |
| Totals | $492,500 | $324,500 |

Based solely on your assessment of Jay McMahon s understanding of accounting, would you hire him as office manager? Explain. Prepare a corrected trial balance that you can use as a basis for your discussion with Jay and future applicants. Explain how the basic accounting equation and the system of double-entry accounting provide a check on the accounting records.

### CASE 3-5 EXERCISING ACCOUNTING JUDGMENT

You have recently started business as an accounting consultant. Companies come to you when they face difficult decisions about how to make certain journal entries. You are currently working on the following two problems, which are independent of one another.

a. Baggins Company sells hamburgers for $1.00 each. The cost of the materials used to make each hamburger is 30 cents. Baggins has a compensation plan in which its employees are paid in the form of cash and hamburgers. During 2003, Baggins paid cash salaries of $500,000 and also issued certificates to employees entitling them to 200,000 free hamburgers. The certificates are not redeemable until 2004. What journal entry or entries should Baggins make in 2003 to record this employee compensation information?

b. Radagast Company purchased a building for $100,000 cash on January 1, 2003. Because of poor business decisions, as of December 31, 2003, the building is worthless. Make all journal entries necessary in 2003 in connection with this building.

## exercises

### EXERCISE 3-1 BASIC ACCOUNTING EQUATION

The fundamental accounting equation can be applied to your personal finances. For each of the following transactions, show how the accounting equation would be kept in balance. Example: Paid for semester s tuition (decrease assets: cash account; decrease owners equity: expense account increases).

1. Took out a school loan for college.
2. Paid this month s rent.
3. Sold your old computer for cash at what it cost to buy it.
4. Received week s paycheck from part-time job.

5. Received interest on savings account.
6. Paid monthly payment on car loan (part of the payment is principal; the remainder is interest).

## EXERCISE 3-2 ACCOUNTING ELEMENTS: INCREASE/DECREASE, DEBIT/CREDIT RELATIONSHIPS

The text describes the following accounting elements: assets, liabilities, owners equity, capital stock, retained earnings, revenues, expenses, and dividends. Which of these elements are increased by a debit entry, and which are increased by a credit entry? Give a transaction for each item that would result in a net increase in its balance.

## EXERCISE 3-3 EXPANDED ACCOUNTING EQUATION

Payless Department Store had the following transactions during the year:

1. Purchased inventory on account.
2. Sold merchandise for cash, assuming a profit on the sale.
3. Borrowed money from a bank.
4. Purchased land, making cash down payment and issuing a note for the balance.
5. Issued stock for cash.
6. Paid salaries for the year.
7. Paid a vendor for inventory purchased on account.
8. Sold a building for cash and notes receivable at no gain or loss.
9. Paid cash dividends to stockholders.
10. Paid utilities.

Using the following column headings, identify the accounts involved and indicate the net effect of each transaction on the accounting equation (+ increase; − decrease; 0 no effect). Transaction 1 has been completed as an example.

| Transaction | Assets | = | Liabilities | + | Owners Equity |
|---|---|---|---|---|---|
| 1 | + (Inventory) | | + (Accounts Payable) | | 0 |

## EXERCISE 3-4 CLASSIFICATION OF ACCOUNTS

For each of the accounts listed, indicate whether it is an asset (A), a liability (L), or an owners equity (OE) account. If it is an account that affects owners equity, indicate whether it is a revenue (R) or expense (E) account.

1. Cash
2. Sales
3. Accounts Receivable
4. Cost of Goods Sold
5. Insurance Expense
6. Capital Stock
7. Mortgage Payable
8. Salaries and Wages Expense
9. Retained Earnings
10. Salaries Payable
11. Accounts Payable
12. Interest Revenue
13. Inventory
14. Interest Receivable
15. Notes Payable
16. Equipment
17. Office Supplies
18. Utilities Expense
19. Interest Payable
20. Rent Expense

## EXERCISE 3-5 NORMAL ACCOUNT BALANCES

For each account listed in Exercise 3-4, indicate whether it would normally have a debit (DR) balance or a credit (CR) balance.

## EXERCISE 3-6 JOURNALIZING TRANSACTIONS

Record each of the following transactions in Chico s General Journal. (Omit explanations.)

1. Issued capital stock for $50,000 cash.
2. Borrowed $10,000 from a bank. Signed a note to secure the debt.
3. Purchased inventory from a supplier on credit for $8,000.

4. Paid the supplier for the inventory purchased in (3) above.
5. Sold inventory that cost $1,200 for $1,500 on credit.
6. Collected $1,500 from customers on transaction (5) above.
7. Paid salaries and rent of $25,000 and $1,200, respectively.

## EXERCISE 3-7

### JOURNALIZING TRANSACTIONS

Silva Company had the following transactions:

1. Purchased a new building, paying $20,000 cash and issuing a note for $50,000.
2. Purchased $15,000 of inventory on account.
3. Sold inventory costing $5,000 for $6,000 on account.
4. Paid for inventory purchased on account (item 2).
5. Issued capital stock for $25,000.
6. Collected $4,500 of accounts receivable.
7. Paid utility bills totaling $360.
8. Sold old building for $27,000, receiving $10,000 cash and a $17,000 note (no gain or loss on the sale).
9. Paid $2,000 cash dividends to stockholders.

Record the above transactions in general journal format. (Omit explanations.)

## EXERCISE 3-8

### JOURNAL ENTRIES

During June 2003, Husky, Inc., completed the following transactions. Prepare the journal entry for each transaction.

| | | |
|---|---|---|
| June | 1 | Received $200,000 for 2,000 shares of capital stock. |
| | 2 | Purchased $50,000 of equipment, with 25% down and 75% on a note payable. |
| | 5 | Paid utilities of $1,500 in cash. |
| | 9 | Sold equipment for $25,000 cash (no gain or loss). |
| | 13 | Purchased $100,000 of inventory, paying 50% down and 50% for credit. |
| | 14 | Paid $5,000 cash insurance premium for June. |
| | 15 | Sold inventory costing $30,000 for $45,000 to customers on account to be paid at a later date. |
| | 20 | Collected $3,000 from accounts receivable. |
| | 24 | Sold inventory costing $50,000 for $69,500 to customers for cash. |
| | 25 | Paid property taxes of $2,000. |
| | 30 | Paid $50,000 of accounts payable for inventory purchased on June 13. |

## EXERCISE 3-9

### POSTING JOURNAL ENTRIES

Post the journal entries prepared in Exercise 3-8 to T-accounts, and determine the final balance for each account. (Assume all beginning account balances are zero.)

## EXERCISE 3-10

### CHALLENGING JOURNAL ENTRIES

The accountant for Han Company is considering how to journalize the following transactions:

a. The employees of Han Company earned $105,000. The employees received $90,000 in cash and were promised that they will receive the remaining $15,000 as a pension payment on the date that they retire.
b. On August 1, 2003, Han Company paid $1,800 cash for one year of rent on a building it is using. This one year of rent is scheduled to be in effect for the 12 months starting on August 1, 2003.

1. What journal entry should be made on the books of Han Company to record the employee compensation information in (a)?
2. Describe any assumptions necessary in making the employee compensation journal entry in (1).

3. Make the necessary journal entry on Han Company s books on August 1 to record the payment for the building rent described in (b).
4. Consider the journal entry made in (3). Is any adjustment to Han s books necessary as of December 31, 2003, as a consequence of the rent journal entry made on August 1?

## EXERCISE 3-11 JOURNAL ENTRIES

The following transactions are for the Main Construction Corporation:

a. The firm purchased land for $300,000, $90,000 of which was paid in cash and a note payable signed for the balance.
b. The firm bought equipment for $75,000 on credit.
c. The firm paid $15,000 it owed to its suppliers.
d. The firm arranged for a $100,000 line of credit (the right to borrow funds as needed) from the bank. No funds have yet been borrowed.
e. One of the primary investors borrowed $50,000 from a bank. The loan is a personal loan.
f. The firm borrowed $65,000 on its line of credit.
g. The firm issued a $5,000 cash dividend to its stockholders.
h. An investor invested an additional $80,000 in the company in exchange for additional capital stock.
i. The firm repaid $7,500 of its line of credit.
j. The firm sold some of its products for $15,000 $5,000 for cash, the remainder on account.
k. Cost of sales in (j) are $8,000.
l. The firm received a $1,000 deposit from a customer for a product to be sold and delivered to that customer next month.

Analyze and record the transactions as journal entries. (Omit explanations.)

## EXERCISE 3-12 ANALYSIS OF JOURNAL ENTRIES

The following journal entries are from the books of Kara Rachel Company:

| | | | |
|---|---|---|---|
| a. | Cash | 10,000 | |
| | Capital Stock | | 10,000 |
| b. | Cash | 25,000 | |
| | Loan Payable | | 25,000 |
| c. | Buildings | 50,000 | |
| | Cash | | 5,000 |
| | Mortgage Payable | | 45,000 |
| d. | Inventory | 25,000 | |
| | Accounts Payable | | 25,000 |
| e. | Accounts Receivable | 42,000 | |
| | Sales | | 42,000 |
| | Cost of Goods Sold | 21,000 | |
| | Inventory | | 21,000 |
| f. | Salary Expense | 6,000 | |
| | Cash | | 6,000 |
| g. | Cash | 37,000 | |
| | Accounts Receivable | | 37,000 |
| h. | Accounts Payable | 20,000 | |
| | Cash | | 20,000 |

For each of the journal entries, prepare an explanation of the business event that is being represented.

## EXERCISE 3-13 JOURNALIZING AND POSTING TRANSACTIONS

Given the following T-accounts, describe the transaction that took place on each specified date during July:

**Cash**

| | | | |
|---|---|---|---|
| 7/5 | 9,500 | 7/1 | 3,420 |
| 7/28 | 8,000 | 7/23 | 2,000 |
| | | 7/25 | 5,000 |
| | | 7/30 | 5,500 |
| Bal. | 1,580 | | |

**Accounts Receivable**

| | | | |
|---|---|---|---|
| 7/14 | 18,000 | 7/5 | 9,500 |
| | | 7/28 | 8,000 |
| Bal. | 500 | | |

**Inventory**

| | | | |
|---|---|---|---|
| 7/10 | 20,000 | 7/14 | 15,000 |
| Bal. | 5,000 | | |

**Equipment**

| | | | |
|---|---|---|---|
| 7/30 | 1,500 | | |

**Land**

| | | | |
|---|---|---|---|
| 7/30 | 4,000 | | |

**Accounts Payable**

| | | | |
|---|---|---|---|
| 7/25 | 5,000 | 7/10 | 20,000 |
| | | Bal. | 15,000 |

**Sales Revenue**

| | | | |
|---|---|---|---|
| | | 7/14 | 18,000 |

**Cost of Goods Sold**

| | | | |
|---|---|---|---|
| 7/14 | 15,000 | | |

**Rent Expense**

| | | | |
|---|---|---|---|
| 7/23 | 2,000 | | |

**Advertising Expense**

| | | | |
|---|---|---|---|
| 7/1 | 3,420 | | |

## EXERCISE 3-14

### TRIAL BALANCE

The account balances from the ledger of Yakamoto, Inc., as of July 31, 2003, are listed here in alphabetical order. The balance for Retained Earnings has been omitted. Prepare a trial balance, and insert the missing amount for Retained Earnings.

| | | | |
|---|---|---|---|
| Accounts Payable | $ 8,600 | Land | $19,000 |
| Accounts Receivable | 2,000 | Miscellaneous Expenses | 1,400 |
| Buildings | 20,000 | Mortgage Payable (due 2006) | 24,000 |
| Capital Stock | 10,000 | Rent Expense | 3,000 |
| Cash | 19,600 | Retained Earnings | ? |
| Equipment | 16,000 | Salary Expense | 10,000 |
| Fees Earned | 26,000 | Supplies | 600 |
| Insurance Expense | 3,600 | Utilities Expense | 400 |

## EXERCISE 3-15

### TRIAL BALANCE

Assume you work in the accounting department at Marshall, Inc. Your boss has asked you to prepare a trial balance as of November 30, 2003, using the following account balances from the company s ledger. Prepare the trial balance and insert the missing amount for Cost of Goods Sold.

| | | | |
|---|---|---|---|
| Accounts Payable | $ 55,000 | Notes Payable | $250,000 |
| Accounts Receivable | 25,000 | Notes Receivable | 20,000 |
| Advertising Expense | 5,000 | Other Expenses | 1,000 |
| Buildings | 150,000 | Property Tax Expense | 1,500 |
| Capital Stock | 173,000 | Rent Expense | 7,500 |
| Cash | 35,000 | Retained Earnings | 40,000 |
| Cost of Goods Sold | ? | Salaries Expense | 155,000 |
| Equipment | 55,000 | Salaries Payable | 2,000 |
| Inventory | 200,000 | Sales Revenue | 375,000 |
| Land | 125,000 | Short-Term Investments | 15,000 |
| Mortgage Payable | 95,000 | Utilities Expense | 7,000 |

## EXERCISE 3-16

### RELATIONSHIPS OF THE EXPANDED ACCOUNTING EQUATION

Domino, Inc., had the following information reported. From these data, determine the amount of:

1. Capital stock at December 31, 2002.
2. Retained earnings at December 31, 2003.
3. Revenues for the year 2003.

| | December 31, 2002 | December 31, 2003 |
|---|---|---|
| Total assets | $250,000 | $300,000 |
| Total liabilities | 60,000 | 70,000 |
| Capital stock | ? | 50,000 |
| Retained earnings | 150,000 | ? |
| Revenues for 2003 | | ? |
| Expenses for 2003 | | 205,000 |
| Dividends paid during 2003 | | 5,000 |

## EXERCISE 3-17

### JOURNAL ENTRY TO CORRECT AN ERROR

Legolas Company paid $5,000 cash for executive salaries. When the journal entry to record this $5,000 payment was made, the payment was mistakenly added to the cost of land purchased by Legolas. The $5,000 should have been recorded as salary expense. Make the journal entry necessary to correct this error.

# problems

## PROBLEM 3-1

### JOURNAL ENTRIES AND TRIAL BALANCE

As of January 1, 2003, Kendrick Corporation had the following balances in its general ledger:

| | Debits | Credits |
|---|---|---|
| Cash | $ 31,500 | |
| Accounts Receivable | 23,500 | |
| Inventory | 92,000 | |
| Office Building | 208,000 | |
| Accounts Payable | | $ 16,500 |
| Mortgage Payable | | 180,000 |
| Notes Payable | | 68,500 |
| Capital Stock | | 57,500 |
| Retained Earnings | | 32,500 |
| Totals | $355,000 | $355,000 |

Kendrick had the following transactions during 2003. All expenses were paid in cash, unless otherwise stated.

a. Accounts Payable as of January 1, 2003, were paid off.
b. Purchased inventory for $35,000 cash.
c. Collected $21,000 of receivables.
d. Sold $185,000 of merchandise, 85% for cash and 15% for credit. The Cost of Goods Sold was $98,500.
e. Paid $25,000 mortgage payment, of which $15,000 represents interest expense.

f. Paid salaries expense of $60,000.
g. Paid utilities of $6,300.
h. Paid installment of $5,000 on note.

*Required:*

1. Prepare journal entries to record each listed transaction. (Omit explanations.)
2. Set up T-accounts with the proper account balances at January 1, 2003, post the journal entries to the T-accounts, and prepare a trial balance for Kendrick Corporation at December 31, 2003.
3. **Interpretive Question:** If the debit and credit columns of the trial balance are in balance, does this mean that no errors have been made in journalizing the transactions? Explain.

## PROBLEM 3-2

### JOURNALIZING AND POSTING

Assume you are interviewing for a part-time accounting job at Spilker & Associates, Inc., and the interviewer gives you the following list of company transactions in September 2003.

Sept. 1 Received $150,000 for capital stock issued.
2 Paid $20,000 cash to employees for wages earned in September 2003.
4 Purchased $75,000 of running shoes and clothing on account for resale.
5 Paid utilities of $1,800 for September 2003.
9 Paid $1,500 cash for September s insurance premium.
11 Sold inventory of running shoes and clothing costing $35,000 for $70,000, with $20,000 received in cash and the remaining balance on credit.
15 Purchased $2,500 of supplies on account.
21 Received $25,000 from customers as payments on their accounts.
25 Paid $75,000 of accounts payable.

Using this list, you have been asked to do the following in the interview:

*Required:*

1. Journalize each of the transactions for September. (Omit explanations.)
2. Set up T-accounts, and post each of the journal entries made in (1).
3. **Interpretive Question:** If the business owners wanted to know at any given time how much cash the company had, where would you tell the owners to look? Why?

## PROBLEM 3-3

### JOURNAL ENTRIES FROM LEDGER ANALYSIS

T-accounts for RAM Technology, Inc., are shown below.

**Cash**

| | | | |
|---|---|---|---|
| (a) | 100,000 | (b) | 45,000 |
| (c) | 50,000 | (d) | 5,000 |
| (e) | 25,000 | (f) | 20,000 |
| (i) | 15,000 | (g) | 53,500 |
| | | (h) | 30,000 |

**Accounts Receivable**

| | | | |
|---|---|---|---|
| (e) | 30,000 | (i) | 15,000 |

**Inventory**

| | | | |
|---|---|---|---|
| (d) | 35,000 | (e) | 30,000 |

**Building**

| | | | |
|---|---|---|---|
| (b) | 150,000 | | |

**Accounts Payable**

| | | | |
|---|---|---|---|
| (h) | 30,000 | (d) | 30,000 |

**Mortgage Payable**

| | | | |
|---|---|---|---|
| | | (b) | 105,000 |

**Notes Payable**

| | | | |
|---|---|---|---|
| (g) | 50,000 | (c) | 50,000 |

**Capital Stock**

| | | | |
|---|---|---|---|
| | | (a) | 100,000 |

**Sales Revenue**

| | | | |
|---|---|---|---|
| | | (e) | 55,000 |

**Cost of Goods Sold**

| | | | |
|---|---|---|---|
| (e) | 30,000 | | |

**Interest Expense**

| | | | |
|---|---|---|---|
| (g) | 3,500 | | |

**Wages Expense**

| | | | |
|---|---|---|---|
| (f) | 20,000 | | |

*Required:*

1. Analyze these accounts and detail the appropriate journal entries that must have been made by RAM Technology, Inc. (Omit explanations.)
2. Determine the amount of net income/loss from the account information.

## PROBLEM 3-4

### JOURNALIZING AND POSTING TRANSACTIONS

Pat Bjornson, owner of Pat s Beauty Supply, completed the following business transactions during March 2003.

Mar. 1 Purchased $53,000 of inventory on credit.
4 Collected $5,000 from customers as payments on their accounts.
5 Purchased equipment for $3,000 cash.
6 Sold inventory that cost $30,000 to customers on account for $40,000.
10 Paid rent for March, $1,050.
15 Paid utilities for March, $100.
17 Paid a $300 monthly salary to the part-time helper.
20 Collected $33,000 from customers as payments on their accounts.
22 Paid $53,000 cash on account payable. (See March 1 entry.)
25 Paid property taxes for March of $1,200.
28 Sold inventory that cost $20,000 to customers for $30,000 cash.

*Required:*

1. For each transaction, give the entry to record it in the company s general journal. (Omit explanations.)
2. Set up T-accounts, and post the journal entries to their appropriate accounts.

## PROBLEM 3-5

### UNIFYING CONCEPTS: COMPOUND JOURNAL ENTRIES, POSTING, TRIAL BALANCE

J&W Merchandise Company had the following transactions during 2003.

a. Sam Jeakins began business by investing the following assets, receiving capital stock in exchange:

| | |
|---|---|
| Cash | $ 20,000 |
| Inventory | 37,000 |
| Land | 25,500 |
| Building | 160,000 |
| Equipment | 12,500* |
| Totals | $255,000 |

*A note of $5,000 on the equipment was assumed by the company.

b. Sold merchandise that cost $30,000 for $45,000; $15,000 cash was received immediately, and the other $30,000 will be collected in 30 days.
c. Paid off the note of $5,000 plus $300 interest.
d. Purchased merchandise costing $12,000, paying $2,000 cash and issuing a note for $10,000.
e. Exchanged $2,000 cash and $8,000 in capital stock for office equipment costing $10,000.
f. Purchased a truck for $15,000 with $3,000 down and a one-year note for the balance.

*Required:*

1. Journalize the transactions. (Omit explanations.)
2. Post the journal entries using T-accounts for each account.
3. Prepare a trial balance at December 31, 2003.

## PROBLEM 3-6

### UNIFYING CONCEPTS: T-ACCOUNTS, TRIAL BALANCE, AND INCOME STATEMENT

The following list is a selection of transactions from Trafalga, Inc. s business activities during 2003, the first year of operations.

a. Received $50,000 cash for capital stock.
b. Paid $5,000 cash for equipment.
c. Purchased inventory costing $18,000 on account.
d. Sold $25,000 of merchandise to customers on account. Cost of goods sold was $15,000.
e. Signed a note with a bank for a $10,000 loan.
f. Collected $9,500 cash from customers who had purchased merchandise on account.
g. Purchased land, $10,000, and a building, $60,000, for $15,000 cash and a 30-year mortgage of $55,000.
h. Made a first payment of $2,750 on the mortgage principal plus $2,750 in interest.
i. Paid $12,000 of accounts payable.
j. Purchased $1,500 of supplies on account.
k. Paid $2,500 of accounts payable.
l. Paid $7,500 in wages earned during the year.
m. Received $10,000 cash and $3,000 of notes in settlement of customers accounts.
n. Received $3,250 in payment of a note receivable of $3,000 plus interest of $250.
o. Paid $600 cash for a utility bill.
p. Sold excess land for its cost of $3,000.
q. Received $1,500 in rent for an unused part of a building.
r. Paid off $10,000 note, plus interest of $1,200.

*Required:*

1. Set up T-accounts, and appropriately record the debits and credits for each transaction directly in the T-accounts. Leave room for a number of entries in the cash account.
2. Prepare a trial balance.
3. Prepare an income statement for the period. (Ignore income taxes and the EPS computation.)

## PROBLEM 3-7 TRANSACTION ANALYSIS AND JOURNAL ENTRIES

Pacific Motors, Inc., entered into the following transactions during the month of August:

a. Purchased $1,500 of supplies on account from Major Supply Company. The cost of the supplies to Major Supply Company was $1,200.
b. Paid $600 to Valley Electric for the monthly utility bill.
c. Sold a truck to Fast Delivery, Inc. A $5,000 down payment was received with the balance of $12,000 due within 30 days. The cost of the delivery truck to Pacific Motors was $11,000.
d. Purchased a total of eight new cars and trucks from Japanese Motors, Inc., for a total of $96,000, one-half of which was paid in cash. The balance is due within 45 days. The total cost of the vehicles to Japanese Motors was $80,000.
e. Paid $1,875 to Silva s Automotive for repair work on cars for the current month.
f. Sold one of the new cars purchased from Japanese Motors to the town mayor, Ana Mecham. The sales price was $17,500, and was paid by Mecham upon delivery of the car. The cost of the particular car sold to Mecham was $12,100.
g. Borrowed $10,000 from a local bank to be repaid in one year with 12% interest.

*Required:*

1. For each of the transactions, make the proper journal entry on the books of Pacific Motors. (Omit explanations.)
2. For each of the transactions, make the proper journal entry on the books of the other party to the transaction, for example, (a) Major Supply Company, (b) Valley Electric. (Omit explanations.)
3. **Interpretive Question:** Why do some of the journal entries for Pacific Motors and other companies involved appear to be mirror images of each other?

## PROBLEM 3-8 CORRECTING A TRIAL BALANCE

The following trial balance was prepared by a new employee.

**Trial Balance**
**Alden Company, Inc.**
**For Year Ended November 30, 2003**

| | Credits | Debits |
|---|---|---|
| Cash | $ 18,250 | |
| Mortgage Payable | | $ 78,900 |
| Advertising Expense | 9,600 | |
| Capital Stock | | 102,000 |
| Equipment | 36,900 | |
| Notes Payable | | 187,350 |
| Inventory | 148,000 | |
| Wages Expense | 87,150 | |
| Notes Receivable | 5,000 | |
| Accounts Payable | | 19,750 |
| Accounts Receivable | | 5,300 |
| Rent Expense | | 8,750 |
| Wages Payable | 9,000 | |
| Furniture | | 15,000 |
| Other Expenses | 2,950 | |
| Sales Revenue | | 235,600 |
| Buildings | 104,700 | |
| Cost of Goods Sold | 113,050 | |
| Property Tax Expense | | 1,300 |
| Land | | 87,850 |
| Retained Earnings | | 14,400 |
| Utilties Expense | 3,200 | |
| Totals | $537,800 | $756,200 |

*Required:* Prepare the corrected company trial balance. (Assume all accounts have normal balances and the recorded amounts are correct.)

## PROBLEM 3-9

### UNIFYING CONCEPTS: JOURNAL ENTRIES, T-ACCOUNTS, TRIAL BALANCE

Downtown Company, a retailer, had the following account balances as of April 30, 2003:

| | | |
|---|---|---|
| Cash | $10,100 | |
| Accounts Receivable | 4,900 | |
| Inventory | 16,000 | |
| Land | 26,000 | |
| Building | 24,000 | |
| Furniture | 4,000 | |
| Notes Payable | | $25,000 |
| Accounts Payable | | 12,000 |
| Capital Stock | | 30,000 |
| Retained Earnings | | 18,000 |
| Totals | $85,000 | $85,000 |

During May, the company completed the following transactions.

May 3 Paid one-half of 4/30/03 accounts payable.
6 Collected all of 4/30/03 accounts receivable.
7 Sold inventory costing $7,700 for $6,000 cash and $4,000 on account.

*(continued)*

May 8 Sold one-half of the land for $13,000, receiving $8,000 cash plus a note for $5,000.
10 Purchased inventory on account, $10,000.
15 Paid installment of $5,000 on notes payable (entire amount reduces the liability account).
21 Issued additional capital stock for $2,000 cash.
23 Sold inventory costing $4,000 for $7,500 cash.
25 Paid salaries of $2,000.
26 Paid rent of $500.
29 Purchased desk for $500 cash.

*Required:*

1. Prepare the journal entry for each transaction.
2. Set up T-accounts with the proper account balances at April 30, 2003, and post the entries to the T-accounts.
3. Prepare a trial balance as of May 31, 2003.

## PROBLEM 3-10

### UNIFYING CONCEPTS: FIRST STEPS IN THE ACCOUNTING CYCLE

The following balances were taken from the general ledger of Benson Company on January 1, 2003:

| | Debits | Credits |
|---|---|---|
| Cash | $13,500 | |
| Short-Term Investments | 10,000 | |
| Accounts Receivable | 12,500 | |
| Inventory | 15,000 | |
| Land | 25,000 | |
| Buildings | 75,000 | |
| Equipment | 20,000 | |
| Notes Payable | | $17,500 |
| Accounts Payable | | 12,500 |
| Salaries and Wages Payable | | 2,500 |
| Mortgage Payable | | 37,500 |
| Capital Stock (7,000 shares outstanding) | | 70,000 |
| Retained Earnings | | 31,000 |

During 2003, the company completed the following transactions:

a. Purchased inventory for $110,000 on credit.
b. Issued an additional $25,000 of capital stock (2,500 shares) for cash.
c. Paid property taxes of $4,500 for the year 2003.
d. Paid advertising and other selling expenses of $8,000.
e. Paid utilities expense of $6,500 for 2003.
f. Paid the salaries and wages owed for 2002. Paid additional salaries and wages of $18,000 during 2003.
g. Sold merchandise costing $105,000 for $175,000. Of total sales, $45,000 were cash sales and $130,000 were credit sales.
h. Paid off notes of $17,500 plus interest of $1,600.
i. On November 1, 2003, received a loan of $10,000 from the bank.
j. On December 30, 2003, made annual mortgage payment of $2,500 and paid interest of $3,700.
k. Collected receivables for the year of $140,000.
l. Paid off accounts payable of $112,500.
m. Received dividends and interest of $1,400 on short-term investments during 2003. (Record as Miscellaneous Revenue.)

n. Purchased additional short-term investments of $15,000 during 2003. (Note: Short-term investments are current assets.)
o. Paid 2003 corporate income taxes of $11,600.
p. Paid cash dividends of $7,600.

*Required:*

1. Journalize the 2003 transactions. (Omit explanations.)
2. Set up T-accounts with the proper account balances at January 1, 2003, and post the journal entries to the T-accounts.
3. Determine the account balances, and prepare a trial balance at December 31, 2003.
4. Prepare an income statement and a balance sheet. (Remember that the dividends account and all revenue and expense accounts are temporary retained earnings accounts.)
5. **Interpretive Question:** Why are revenue and expense accounts used at all?

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***Analyzing 3-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** is included in Appendix A. Locate that annual report and consider the following questions:

1. Find Microsoft s 1999 income statement. Assume that research and development expenditures were paid in cash. What journal entry did Microsoft make in 1999 to record research and development?
2. Find Microsoft s 1999 cash flow statement. What journal entry did Microsoft make in 1999 to record the issuance of common stock?
3. Again, looking at the cash flow statement what journal entry did Microsoft make in 1999 to record the purchase of property and equipment?
4. Using information from the cash flow statement, re-create the journal entry Microsoft made in 1999 to record the purchase of investments. Using the beginning and ending balances from the balance sheet, comment on the change in the balance of the equity and other investments account between the beginning of 1999 and the end of 1999.

***Analyzing 3-2 (McDonald s)***

A brief history of the origin of the **McDONALD S CORPORATION** is given at the start of this chapter. The following questions are adapted from information appearing in McDonald s 1999 annual report.

1. In 1999, total sales at all McDonald s stores worldwide were $38.5 billion. There were 26,806 McDonald s stores operating in 1999. *Estimate* how many customers per day visit an average McDonald s store.
2. For the stores owned by the McDonald s Corporation (as opposed to those owned by franchisees), total sales in 1999 were $9.512 billion, and total cost of food and packaging was $3.205 billion. What journal entries would McDonald s make to record a $10 sale and to record the cost of food and packaging associated with the $10 sale?
3. McDonald s reported payment of cash dividends of $264.7 million in 1999. What journal entry was required?
4. McDonald s reported that the total income tax it owed for 1999 was $936.2 million. However, only $642.2 million in cash was paid for taxes during the year. What compound journal entry did McDonald s make to record its income tax expense for the year?

## INTERNATIONAL CASE

***Shanghai Petrochemical Company Limited***

In July 1993, **SHANGHAI PETROCHEMICAL COMPANY LIMITED** became the first company organized under the laws of the People s Republic of China to publicly issue its shares on the worldwide market. Shanghai Petrochemical s shares now trade on the stock exchanges in Shanghai, Hong Kong, and New York. The following questions are adapted from information appearing in Shanghai Petrochemical s 1995 annual report.

1. In 1995, Shanghai Petrochemical reported sales of 11.835 billion renminbi (US$ 1 = 8.33 RMB) and cost of sales of RMB 9.016 billion. Make the necessary journal entries, using renminbi as the currency.
2. In 1995, Shanghai Petrochemical declared cash dividends of RMB 851.5 million. However, cash paid for dividends during the year was only RMB 818.8 million. Make the necessary compound journal entry to record the declaration and payment of cash dividends for the year.
3. In China, a 17% value added tax (VAT) is added to the invoiced value of all sales. This VAT is collected by the seller from the buyer and then held to be forwarded to the government. What journal entry would Shanghai Petrochemical make to record the sale, on account, of crude oil with an invoice sales value of $100 and a cost of $70?

## ETHICS CASE

***Should You Go the Extra Mile?***

You work in a small convenience store. The store is very low-tech; you ring up the sales on an old-style cash register that merely records the amount of the sale. The store owner uses this cash register tape at the end of each day to verify that the correct amount of cash is in the cash register drawer. On a day-to-day basis, no other financial information is collected about store operations.

Since you started studying accounting, you have become a bit uneasy about your job because you see many ways that store operations could be improved through the gathering and use of financial information. Even though you are not an expert, you are quite certain that you could help the store owner set up an improved information system. However, you also know that this will take extra effort on your part, with no real possibility of receiving an increase in pay.

Should you say anything to the store owner, or should you just keep quiet and save yourself the trouble?

## WRITING ASSIGNMENT

***Accounting Is Everywhere!***

Financial accounting information is frequently used in newspaper and magazine articles to provide background data on companies. Prepare a one-page report on the use of financial accounting data by the press. Proceed as follows:

1. Scan the articles in a recent copy of one of the popular business periodicals (such as *The Wall Street Journal*, *Forbes*, *Fortune*, or *Business Week*) for examples of the use of financial accounting data.
2. Identify and describe three interesting examples:

   Detail the nature of the accounting data used.
   Outline the point that the writer is trying to make by using the particular accounting data.

## THE DEBATE

***Are Computers the Hero or the Villain?***

As explained in the body of the chapter, computers have revolutionized the accounting process. In addition to taking over the mundane jobs of posting and report formatting, computers have also changed the way we think about information. When accounting was done by hand, it was not possible to match individual sales with specific products, specific customers, the exact time of day of the sale, the income level of the customer, the customer s favorite TV shows and magazines, and the like. In short, computers have made it possible to use the raw financial data to track much more than just revenues and expenses. How far should the use of computers go?

Divide your group into two teams.

One team represents the computer technology group, To Infinity, and Beyond! Prepare a two-minute oral presentation supporting the notion that firms have a right to use their computer database systems to gather as much information about customers as possible, and even to sell that information to other firms. Now is the Information Age, and computers have made it possible to easily buy and sell information just like any other commodity.

The other team represents Right to Privacy. Prepare a two-minute oral presentation arguing that firms have no right to maintain databases containing individual customer information. A company s information system should relate to that company s products and processes, and customers have the right to interact with the firm anonymously.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignment given in Chapter 2. If you completed that spreadsheet, you have a head start on this one.

1. Refer back to the financial statement numbers for Handyman Company for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2]. Using the balance sheet and income statement created with those numbers, create spreadsheet cell formulas to compute and display values for the following ratios:
   a. Current ratio
   b. Debt ratio

c. Asset turnover
d. Return on equity

2. Determine the impact of each of the following transactions on the ratio values computed in (1). Treat each transaction independently, meaning that before determining the impact of each new transaction, you should reset the financial statement values to their original amounts. Each of the hypothetical transactions is assumed to occur on the last day of the year.
   a. Collected $20 cash from customer receivables.
   b. Purchased $30 in inventory on account.
   c. Purchased $100 in property, plant, and equipment. The entire amount of the purchase was financed with a mortgage. Principal repayment for the mortgage is due in 10 years.
   d. Purchased $100 in property, plant, and equipment. The entire amount of the purchase was financed with new stockholder investment.
   e. Borrowed $20 with a short-term loan payable. The $20 was paid out as a dividend to stockholders.
   f. Received $20 as an investment from stockholders. The $20 was paid out as a dividend to stockholders.

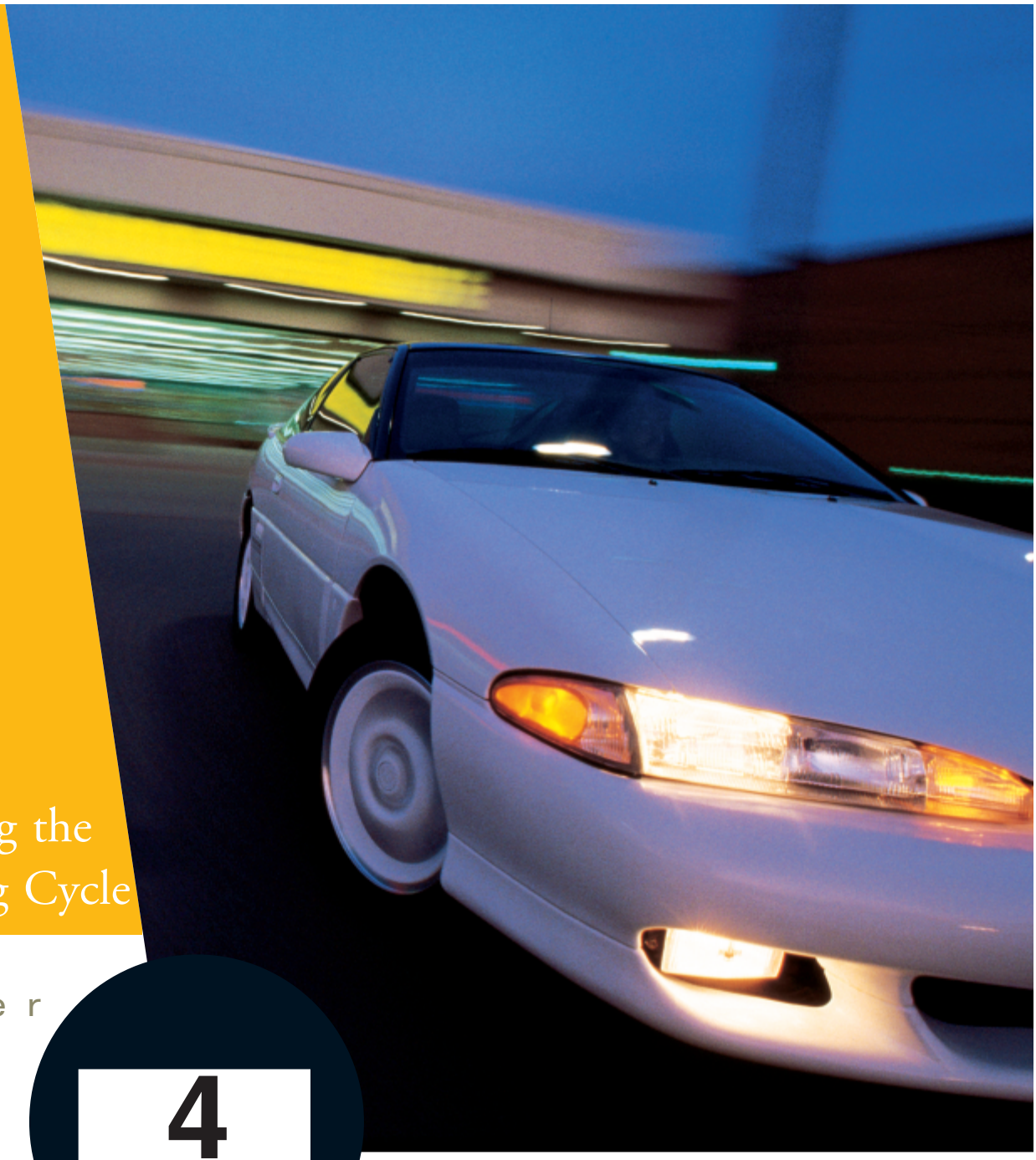
## INTERNET SEARCH

***McDonald s***

Access **McDONALD S** Web site at **http://www.mcdonalds.com**. Sometimes Web addresses change, so if this McDonald s address doesn t work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link to McDonald s.

Once you ve gained access to McDonald s Web site, answer the following questions:

1. Which has more calories two hamburgers or one Big Mac?
2. How much money do you need to purchase a McDonald s franchise in the United States? What else is required to purchase a franchise?
3. Sometimes it isn t easy to find a company s financial statements in its Web site. Describe what you had to do to find a copy of McDonald s most recent annual report.
4. What information is contained in McDonald s most recent financial press release?



# Completing the Accounting Cycle

chapter

4

## learning objectives

After studying this chapter, you should be able to:

1. Describe how accrual accounting allows for timely reporting and a better measure of a company s economic performance.
2. Explain the need for adjusting entries and make adjusting entries for unrecorded receivables, unrecorded liabilities, prepaid expenses, and unearned revenues.
3. Explain the preparation of the financial statements, the explanatory notes, and the audit report.
4. Perform a systematic analysis of financial statements.
5. Complete the closing process in the accounting cycle.
6. Understand how all the steps in the accounting cycle fit together.

expanded material

7. Make adjusting entries for prepaid expenses and unearned revenues when the original cash amounts are recorded as expenses and revenues.

**GENERAL MOTORS**, the brainchild of William Durant, was formed through the acquisition of a number of preexisting car makers. **BUICK** and **OLDSMOBILE** were acquired in 1908; **CADILLAC** and **PONTIAC** (originally called **OAKLAND**) were added in 1909. With so many acquisitions in those early years, General Motors financing was quickly depleted, and Durant lost control of his company. With Durant fighting to regain the reins of General Motors, the company was in such turmoil that, at one point, **CHEVROLET MOTOR COMPANY** (another Durant creation) owned a majority of GM stock. After many deals, Durant found himself back in charge in 1916, and Chevrolet became a subsidiary of GM in 1918.

Following the end of World War I, an economic slowdown stretched Durant s financial resources past the breaking point, and in 1920 he lost control of General Motors for good. Pierre S. du Pont, a GM investor since 1914, became the company s new president. Du Pont brought to General Motors the financial resources and business connections associated with his own family s chemical empire. He was also instrumental in instituting the du Pont style of management and control. Implemented at General Motors by Alfred P. Sloan (who later went on to head GM until 1956), this system emphasized decentralized decision making; evaluations of managers of autonomous divisions were based on reaching specific financial goals. This DuPont system of evaluation is discussed later in the chapter.

Under Sloan s leadership, General Motors became the dominant car maker in the world, a position it still holds. In addition to implementing the DuPont system of evaluation and control, Sloan also formalized the caste system among GM s different automobile lines. For example, Chevrolets were targeted at the lower-income end of the market, while Cadillacs were aimed at the higher end. Sloan was also instrumental in creating the annual ritual of the car model year to encourage owners of older models to trade them in on new cars with the latest innovations.

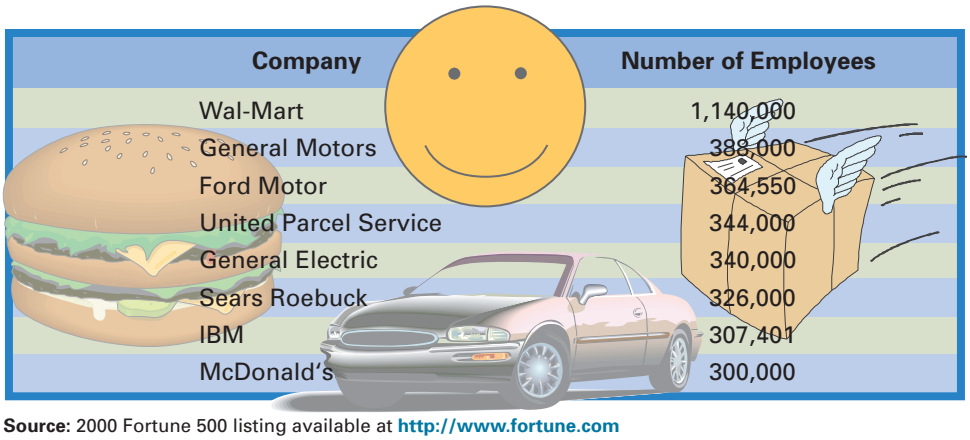
Although General Motors global market share has declined with stiff competition from Japanese, European (including **DAIMLERCHRYSLER**), and domestic (**FORD**) competitors, General Motors still sells more cars and trucks than any other company in the world. In 1999, GM sold 8.7 million vehicles, 15.8% of the worldwide total. GM also remains one of the largest private employers in the United States, ranking second behind **WAL-MART** in the 2000 Fortune 500 listing (see Exhibit 4-1).

In addition to being the most prolific car maker in the world, General Motors has the unenviable distinction of having posted the world record largest annual net loss. In 1992, GM reported a loss for the year of $23.5 billion. This record loss followed losses of $2.0 billion in 1990 and $4.5 billion in 1991.

setting the stage

How was General Motors able to stay in business while reporting these huge losses? During the same period it was reporting large losses on its income statement, GM was reporting healthy cash from operations on its cash flow statement. In fact, in 1992 (the year of the record loss), GM s positive cash from operations was $9.8 billion. This strong cash flow enabled GM to continue normal operations, pay its

**exhibit 4-1** U.S. Companies with the Most Employees, 1999



| Company | Number of Employees |
|---|---|
| Wal-Mart | 1,140,000 |
| General Motors | 388,000 |
| Ford Motor | 364,550 |
| United Parcel Service | 344,000 |
| General Electric | 340,000 |
| Sears Roebuck | 326,000 |
| IBM | 307,401 |
| McDonald's | 300,000 |

**Source:** 2000 Fortune 500 listing available at **http://www.fortune.com**

suppliers, repay its loans, and maintain investor confidence even while reporting significant losses.

Where did these losses come from if they weren t the result of a shortfall in cash from operations? The losses came from business expenses that General Motors had incurred as part of its operations but which had not yet been paid in cash. For example, the record $23.5 billion loss was primarily due to recording the large business expense from postretirement medical benefits that have been promised to GM employees. General Motors won t actually have to make the cash payments related to these benefits until the employees retire in the future. The benefits have already been earned, however, so they should be reported as a cost of business now. The art of accounting involves recording all business expenses both those that are paid in cash and those that involve promises of payment in the future. As GM s $23.5 billion loss illustrates, those promises of future payment can really add up.

*As the General Motors scenario illustrates, adjustments (to the raw transaction data recorded in the accounts) usually are needed so that the financial statements will accurately reflect a company s economic performance during the period and its economic condition as of the end of the period. This is a part of completing the accounting cycle. In addition, certain accounts must be closed at the end of an accounting period to prepare the records for a new accounting cycle. The nature of year-end adjustments, the remaining steps in the accounting cycle, and general techniques for analyzing the information contained in financial statements are discussed in this chapter.*

1

Describe how accrual accounting allows for timely reporting and a better measure of a company s economic performance.

## ACCRUAL ACCOUNTING

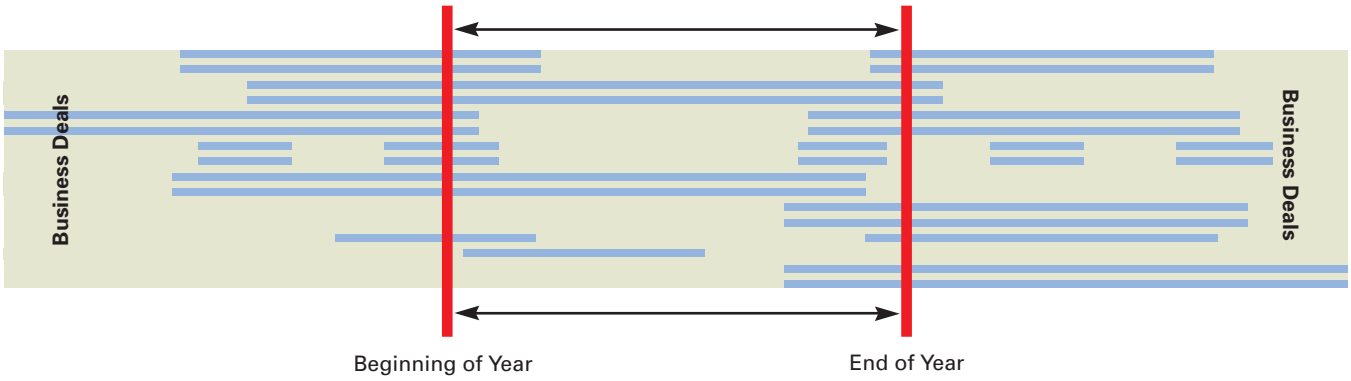
In 2002, two brothers sign a contract for a consulting project. The total contract price is $20,000. The brothers do most of the consulting work in 2002 and finish the job in 2003. They receive a $2,000 cash payment from the contract in 2002 and receive the remaining $18,000 cash in 2003. On December 31, 2002, the brothers prepare a 2002 income statement to use in applying for a bank loan. What amount of revenue should the brothers report for 2002?

This example illustrates why accounting is much more than merely tabulating cash receipts and cash payments. A proper measure of the brothers economic performance in 2002 requires estimating the value of the work completed in 2002; to report 2002 revenue as only the $2,000 cash received grossly understates the actual economic output produced during the year. In addition, the need for the year-end income statement means that the brothers can t wait until after the final contract payment is received before preparing a summary of their activities; the bank wants the income statement now.

*Accrual accounting* is the process of adjusting raw transaction data into refined measures of a firm s past economic performance and current economic condition. As the following sections explain, this accrual process is necessary because a business requires periodic, timely financial reports and accrual information better measures a firm s performance than do cash flow data.

The difficulty in using accrual accounting to generate a performance measure is represented in Exhibit 4-2. Each horizontal bar in the exhibit represents a business deal such as the production and sale of a car, the delivery of legal services for a specific lawsuit, or the development, delivery, and support of a piece of software. Some deals last less than a day from start to finish, such as when a barber provides a haircut in exchange for cash. The obligations and responsibilities associated with other deals can stretch on for years. For example, when you buy a **GENERAL MOTORS** car, the deal is not done from your standpoint until four or five years later after you have received all of the GM warranty services promised to you. And, from GM s standpoint, the deal is not done until 40 or 50 years later after GM has paid the assembly-line workers all of the pension benefits they earned through the labor hours spent assembling your car. Even though the economic loose ends of some business deals extend for years, financial statement users still require periodic reports about a company s operating performance. As you can see in Exhibit 4-2, the beginning and the end of a year are arbitrary breaks in the life of an ongoing business. The job of accountants is to consider all business deals that were at least par-

exhibit 4-2 The Problem of Income Measurement




tially completed during a year and to measure the profit associated with those deals. This profit is then reported as net income for the year. As you can see, accrual accounting is much more than mere bean counting.

## Periodic Reporting

**time-period concept** The idea that the life of a business is divided into distinct and relatively short time periods so that accounting information can be timely.

**fiscal year** An entity s reporting year, covering a 12-month accounting period.

**calendar year** An entity s reporting year, covering 12 months and ending on December 31.

All businesses, large or small, periodically issue their financial statements so that users can make sound economic decisions. Current owners, prospective investors, bankers, and others need up-to-date reports in order to compare and judge a company s financial position and operating results on a continuing, timely basis. They need to know the financial position of a company (from the balance sheet), the relative success or failure of current operations (from the income statement), and the nature and extent of cash flows (from the statement of cash flows).

The financial picture of a company its success or failure in meeting its economic objectives cannot really be complete until the life of a business is over. However, managers, owners, and creditors cannot wait 10, 20, or 100 years to receive an exact accounting of a business. In order to provide timely accounting information, the **time-period concept** divides the life of an enterprise into distinct and relatively short (generally 12 months or less) accounting periods. The 12-month accounting period is referred to as the **fiscal year**. When an entity closes its books on December 31, its reports are based on a **calendar year**.

**f y i**

As mentioned in Chapter 2, about two-thirds of large U.S. companies choose December 31 as the end of their fiscal year.

Most large corporations, and even many small companies, issue a report to stockholders as of a fiscal year-end. As noted in Chapters 1 and 2, this annual report includes the primary financial statements (balance sheet, income statement, and statement of cash flows) and other financial data, such as a management discussion and analysis of operations. Other financial reports are prepared more frequently, perhaps quarterly or monthly. Indeed, some reports, such as sales reports for use by management, may be prepared on a daily basis.

Although periodic reporting is vital to a firm s success, the frequency of reporting forces accountants to use some data that are based on judgments and estimates. As you will see, the shorter the reporting period (for example, a month instead of a year), the less exact are the measurements of assets and liabilities and the recognition of revenues and expenses. Ideally, accounting judgments are made carefully and estimates are based on reliable evidence, but the limitations of accounting reports should be understood and kept in mind.

STOP & THINK Since almost all companies have their financial records on computer, what stops them from preparing financial statements every day?

## Accrual- versus Cash-Basis Accounting

**accrual-basis accounting** A system of accounting in which revenues and expenses are recorded as they are earned and incurred, not necessarily when cash is received or paid.

Closely related to the time-period concept is the concept of **accrual-basis accounting**. This important characteristic of the traditional accounting model simply means that revenues are recognized (recorded) when earned without regard for when cash is received; expenses are recorded

business environment essay

**Net Income versus Cash Flow and EVA$^{fi}$**

Accountants are proud of the set of accrual accounting rules that they have developed over the years. According to accountants, when these rules are applied to raw cash flow data, the resulting net income number provides a superior measure of a company s performance. Some financial analysts and many finance professors have long been skeptical about the value of accrual accounting. These skeptics contend that an investor is better off analyzing a company using cash flow data because the accounting rules distort a company s reported performance.

Recently, accrual accounting has been attacked from another direction. **STERN STEWART & COMPANY** has marketed an alternative measure of financial performance that it claims is superior to the net income number computed by accountants. The Stern Stewart measure is called Economic Value Added, or EVA$^{fi}$. Many prominent companies, including **COCA-COLA**, **AT&T**, and **SPRINT**, have paid Stern Stewart & Company for the right to use EVA$^{fi}$ as an internal performance measure. Stern Stewart & Company claims that EVA$^{fi}$ is almost 50% better than its closest accounting-based competitor in explaining changes in shareholder wealth.

Three accounting professors decided to test the validity of these challenges to the usefulness of ac-

as incurred without regard for when they are paid. Accrual accounting requires that revenues and expenses be assigned to their proper accounting periods, which do not necessarily coincide with the periods in which cash is received or paid.

**revenue recognition principle** The idea that revenues should be recorded when (1) the earnings process has been substantially completed and (2) cash has either been collected or collectibility is reasonably assured.

**REVENUE RECOGNITION** How do we assign revenues to particular periods? First, we must determine when revenues have actually been earned. The **revenue recognition principle** states that revenues are recorded when two main criteria have been met.

1. The earnings process is substantially complete; generally, a sale has been made or services have been performed.
2. Cash has been collected or collectibility is reasonably assured.

These two criteria ensure that both parties to the transaction have fulfilled their commitment or are formally obligated to do so. In simple terms, satisfying the first criterion demonstrates that the seller has done something; satisfying the second criterion demonstrates that the buyer has done something. The seller generally records sales revenue when goods are shipped or when services are performed. When this occurs, the seller has completed his or her part of the transaction. The seller assumes, when shipment is made or services performed, that the buyer has given a valid promise to pay (if this promise is not implied, then the seller probably will not ship). The promise to pay, or the actual payment, would complete the buyer s part of the transaction. If, for example, General Motors sold and shipped $800 million of cars in 2003, but will not receive the cash proceeds until 2004, the $800 million would still be recognized as revenue in 2003, when it is earned and a promise of payment is received. Both of the revenue recognition principle criteria have been met. On the other hand, if General Motors is paid in 2003 for cars to be shipped in 2004, it would not record those payments as revenues until the cars are actually shipped.

**matching principle** The concept that all costs and expenses incurred in generating revenues must be recognized in the same reporting period as the related revenues.

**THE MATCHING PRINCIPLE** Once a company determines which revenues should be recognized during a period, how does it identify the expenses incurred? The **matching principle** requires that all costs and expenses incurred to generate revenues must be recognized in the same accounting period as the related revenues. The cost of the merchandise sold, for example, should be matched to the revenue derived from the sale of that merchandise during the period. Expenses that cannot be matched with revenues are assigned to the accounting period in which

crual accounting. Professors Biddle, Bowen, and Wallace constructed statistical tests to determine which performance measure accrual accounting net income, EVA[fi], or cash flow from operations is most closely associated with the ultimate performance measure, the annual change in the market value of a company. Using data for 773 U.S. companies for 11 years, Professors Biddle, Bowen, and Wallace computed a statistic called adjusted $R^2$, which reflects the degree of association between a performance measure number for a given company in a given year and the company s market value change in the same year. The higher the adjusted $R^2$ value, the closer the association between the performance measure and the company s change in market value. The computed adjusted $R^2$ values were:

| | |
|---|---|
| Net income (excluding extraordinary items) | 12.8% |
| EVA[fi] | 6.5% |
| Cash flow from operations | 2.8% |

So, accrual accounting is still the undisputed champion of performance measures.

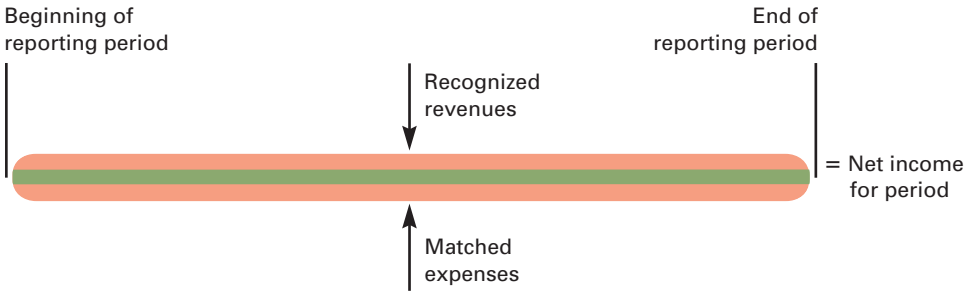
**Source:** Gary C. Biddle, Robert M. Bowen, and James S. Wallace. Does EVA[fi] Beat Earnings? Evidence on Associations with Stock Returns and Firm Values, *Journal of Accounting and Economics*, December 1997, p. 301.

they are incurred. For example, the exact amount of electricity used to make an automobile generally cannot be determined, but since the amount used for a month or a year is known, that amount can be matched to the revenues earned during the same period.

As shown in Exhibit 4-3, this process of matching expenses with recognized revenues determines the amount of net income reported on the income statement. Net income is the most widely used indicator of how well a company has performed during a period. The subject of income determination, including revenue recognition and expense matching, is discussed more completely in Chapters 6, 7, and 8.

To illustrate the difference between cash- and accrual-basis accounting, and to demonstrate why accrual-basis accounting provides a more meaningful measure of income, assume that Karas Brothers billed clients $50,500 for consulting services in 2003. By December 31, Karas had received $22,000, with the $28,500 balance expected in 2004. During 2003, Karas paid $21,900 for various expenses. At December 31, Karas still owed $11,200 for additional expenses incurred. These expenses will be paid during January 2004. How much income should Karas Brothers report for 2003? The answer depends on whether cash-basis or accrual-basis accounting is used. As shown on the next page, with cash-basis accounting, reported income would be $100. With accrual-basis accounting, reported income would be $17,400.

**exhibit 4-3** Determining Accrual Income




*Recognized Revenues − Matched Expenses = Net Income for Period*

**cash-basis accounting** A system of accounting in which transactions are recorded and revenues and expenses are recognized only when cash is received or paid.

**Karas Brothers**
**Reported Income for 2003**

| Cash-Basis Accounting | | Accrual-Basis Accounting | |
|---|---|---|---|
| Cash receipts | $22,000 | Revenues earned | $50,500 |
| Cash disbursements | 21,900 | Expenses incurred | 33,100 |
| Income | $ 100 | Income | $17,400 |

**caution**

Although accrual-basis net income is the measure of Karas Brothers economic performance for the year, the cash flow information is useful in evaluating the need to obtain short-term loans, the ability to repay existing loans, and the like. The statement of cash flows is an essential companion to the accrual-basis income statement.

How do we explain this $17,300 difference? Under **cash-basis accounting**, Karas Brothers would report only $22,000 in revenue, the total amount of cash received during 2003. Similarly, the company would report only $21,900 of expenses (the amount actually paid) during 2003. The additional $11,200 of expenses incurred but not yet paid would not be reported. Using accrual-basis accounting, however, Karas earned $50,500 in revenues, which is the total increase in resources for the period (an increase of $22,000 in cash plus $28,500 in receivables). Similarly, Karas incurred a total of $33,100 in expenses, which should be matched with revenues earned to produce a realistic income measurement. The combined result of increasing revenues by $28,500 while increasing expenses by only $11,200 creates the $17,300 difference in net income ($28,500 − $11,200 = $17,300).

As this example shows, accrual-basis accounting provides a more accurate picture of a company s profitability. It matches earned revenues with the expenses incurred to generate those revenues. This helps investors, creditors, and others to better assess the operating results of a company and make more informed judgments concerning its profitability and earnings potential. Accrual-basis accounting is required by generally accepted accounting principles (GAAP).

## to summarize

Users of accounting information need timely, periodic financial reports to make decisions. The revenue recognition and matching principles provide guidelines for assigning the appropriate amounts of revenues and expenses to each period under accrual accounting. Accrual-basis accounting provides a better measure of net income than does cash-basis accounting; it is therefore required by GAAP in reporting the results of company operations.

**2**

Explain the need for adjusting entries and make adjusting entries for unrecorded receivables, unrecorded liabilities, prepaid expenses, and unearned revenues.

## ADJUSTING ENTRIES

**adjusting entries** Entries required at the end of each accounting period to recognize, on an accrual basis, revenues and expenses for the period and to report proper amounts for asset, liability, and owners equity accounts.

As discussed in Chapter 3, transactions generally are recorded in a journal in chronological order and then posted to the ledger accounts. The entries are based on the best information available at the time. Although the majority of accounts are up-to-date at the end of an accounting period and their balances can be included in the financial statements, some accounts require adjustment to reflect current circumstances. In general, these accounts are not updated throughout the period because it is impractical or inconvenient to make such entries on a daily or weekly basis. At the end of each accounting period, in order to report all asset, liability, and owners equity amounts properly and to recognize all revenues and expenses for the period on an accrual basis, accountants are required to make any necessary adjustments prior to preparing the financial statements. The entries that reflect these adjustments are called **adjusting entries**.

One difficulty with adjusting entries is that the need for an adjustment is not signaled by a specific event such as the receipt of a bill or the receipt of cash from a customer. Rather, adjusting entries are recorded on the basis of an analysis of the circumstances at the close of each accounting period. This analysis involves just two steps:

1. Determine whether the amounts recorded for all assets and liabilities are correct. If not, debit or credit the appropriate asset or liability account. In short, fix the balance sheet.
2. Determine what revenue or expense adjustments are required as a result of the changes in recorded amounts of assets and liabilities indicated in step 1. Debit or credit the appropriate revenue or expense account. In short, fix the income statement.

It should be noted that these two steps are interrelated and may be reversed. That is, revenue and expense adjustments may be considered first to fix the income statement, indicating which asset and liability accounts need adjustment to fix the balance sheet. As you will see, each adjusting entry involves at least one income statement account and one balance sheet account. T-accounts are helpful in analyzing adjusting entries and will be used in the illustrations that follow.

The areas most commonly requiring analysis to see whether adjusting entries are needed are:

1. Unrecorded receivables
2. Unrecorded liabilities
3. Prepaid expenses
4. Unearned revenues

As we illustrate and discuss adjusting entries, remember that the basic purpose of adjustments is to make account balances current in order to report all asset, liability, and owners equity amounts properly and to recognize all revenues and expenses for the period on an accrual basis. This is done so that the income statement and the balance sheet will reflect the proper operating results and financial position, respectively, at the end of the accounting period.

## Unrecorded Receivables

**unrecorded receivables**
Revenues earned during a period that have not been recorded by the end of that period.

In accordance with the revenue recognition principle of accrual accounting, revenues should be recorded when earned, regardless of when the cash is received. If revenue is earned but not yet collected in cash, a receivable exists. To ensure that all receivables are properly reported on the balance sheet in the correct amounts, an analysis should be made at the end of each accounting period to see whether there are any revenues that have been earned but have not yet been collected or recorded. These **unrecorded receivables** are earned and represent amounts that are receivable in the future; therefore, they should be recognized as assets.

To illustrate, we will pick up with the landscaping business we started in Chapter 3. Recall that we mow lawns, pull weeds, plant shrubs, and perform other related services. We are able to provide these services year round because we live in a region with a very mild climate. Our company reports on a calendar-year basis and has determined the following on December 31, 2003:

> On November 1, we entered into a year-long contract with an apartment complex to provide general landscaping services each week and bill the customer every three months. The terms of the contract state that we will earn $400 per month. As of December 31, Lawn Care Revenue of $800 ($400 for November and $400 for December) has not been recorded and will not be received until the end of January 2004. No entry has been made with regard to the contract.

As of year-end, no asset has been recorded, but an $800 receivable exists ($400 × 2), because two months worth of revenue has been earned. To record this receivable, we must debit (increase) the asset Accounts Receivable for $800. With the debit, we have accomplished step 1 by fixing the balance sheet with regard to this transaction. Step 2 requires that we use the other half of the adjusting entry, the credit of $800, to fix the income statement. We know that the credit must be to a revenue or an expense account, and the nature of the transaction suggests that we should credit Lawn Care Revenue for $800. The adjusting entry is:

| | | | |
|---|---|---|---|
| Dec. 31 | Accounts Receivable | 800 | |
| | Lawn Care Revenue | | 800 |
| | *To record earned revenue not yet received.* | | |

Adjusting entries are recorded in the general journal and are posted to the accounts in the general ledger in the same manner as other journal entries. Again note that each adjusting entry must involve at least one balance sheet account and at least one income statement account.

After this adjusting entry has been journalized and posted, the receivable will appear as an asset on the balance sheet, and the lawn care revenue is reported on the income statement. Through the adjusting entry, the asset (receivable) accounts are properly stated and revenues are appropriately reported.

## Unrecorded Liabilities

**unrecorded liabilities** Expenses incurred during a period that have not been recorded by the end of that period.

Just as assets are created from revenues being earned before they are collected or recorded, liabilities can be created by expenses being incurred prior to being paid or recorded. These expenses, along with their corresponding liabilities, should be recorded when incurred, no matter when they are paid. Thus, adjusting entries are required at the end of an accounting period to recognize any **unrecorded liabilities** in the proper period and to record the corresponding expenses. As the expense is recorded (increased by a debit), the offsetting liability is also recorded (increased by a credit), showing the entity s obligation to pay for the expense. If such adjustments are not made, the net income measurement for the period will not reflect all appropriate expenses and the corresponding liabilities will be understated on the balance sheet.

To illustrate, we will assume that on December 31, 2003, our landscaping company has determined the following:

**f y i**

Most companies don t have to be reminded to search out unrecorded assets and revenues and recognize them. On the other hand, unrecorded liabilities and expenses are things companies would rather forget. Auditors must take care to ensure that all unrecorded liabilities and expenses are properly reported.

1. Your brother has worked for the company since its inception. He is paid every two weeks. The next payday is on Friday, January 5, 2004. On that day, your brother will be paid $700, the amount he earns every two weeks. Since December 31 falls halfway through the pay period, one-half of his wages should be allocated to 2003.
2. Recall from Chapter 3 that one of our options for financing our company was to borrow money from a bank. We borrowed $2,000 with the promise that on the first of every month we would make a $178 payment a portion of that payment being attributed to interest[1] and a portion to principal. Our next payment is due on January 1, 2004, but the interest expense associated with that payment should be attributed to the period in which the money was actually used December 2003. Assume that interest of $20 must be recognized on December 31, 2003.

To represent its current financial position and earnings, our landscaping company must record the impact of these events in the accounts, even though cash transactions have not yet occurred. The wages will not be paid until 2004. Under accrual-basis accounting, however, these costs are expenses of 2003 and should be recognized on this year s income statement, with the corresponding liability shown on the balance sheet as of the end of the year. To fix the balance sheet, Wages Payable must be credited (increased) for $350; recognition of this liability ensures that the balance sheet properly reports this liability, which was created during 2003 and exists as of the end of the year. The debit of this adjusting entry is to Wages Expense, resulting in the proper inclusion of this expense in the 2003 income statement. The adjusting journal entry is as follows:

| | | | |
|---|---|---|---|
| Dec. 31 | Wages Expense | 350 | |
| | Wages Payable | | 350 |
| | *To record obligation for wages.* | | |

The liability for the interest for the month of December is recorded by a credit (increase) to Interest Payable; this fixes the balance sheet. The debit of the adjusting entry is to Interest

1 As noted in Chapter 3, *interest* is the cost of using money. The amount borrowed or lent is the *principal*. The *interest rate* is an annual rate stated as a percentage. The *period of time* involved may be stated in terms of a year. For example, if interest is to be paid for 3 months, time is 3/12, or 1/4 of a year. If interest is to be paid for 90 days, time is 90/365 of a year. Thus, the formula for computing interest is Interest = Principal × Interest Rate × Time (fraction of a year).

**caution**

A liability is not recorded for the total amount of interest that will have to be paid over the entire life of the loan. If we repay the loan on December 31, the future interest will not have to be paid, but the interest for the month of December that has passed will still be due.

Expense, which properly includes this expense on the 2003 income statement. The adjusting entry is:

| | | | |
|---|---|---|---|
| Dec. 31 | Interest Expense | 20 | |
| | Interest Payable | | 20 |
| | *To record interest incurred.* | | |

The wages expense and interest expense would be shown on the income statement for the year ended December 31, and the liabilities (wages payable and interest payable) would be shown on the balance sheet as of December 31. Because of the adjusting entries, both the income statement and the balance sheet will more accurately reflect the financial situation of our landscaping company.

## Prepaid Expenses

**prepaid expenses** Payments made in advance for items normally charged to expense.

Payments that a company makes in advance for items normally charged to expense are known as **prepaid expenses**. An example would be the payment of an insurance premium for three years. Theoretically, every resource acquisition is an asset, at least temporarily. Thus, the entry to record an advance payment should be a debit to an asset account (Prepaid Expenses) and a credit to Cash, showing the exchange of cash for another asset.

**caution**

Prepaid Expenses is a tricky name for an asset. Assets are reported in the balance sheet. Don t make the mistake of including Prepaid Expenses with the expenses on the income statement.

An expense is the using up of an asset. For example, when supplies are purchased, they are recorded as assets; when they are used, their cost is transferred to an expense account. The purpose of making adjusting entries for prepaid expenses is to show the complete or partial consumption of an asset. If the original entry is to an asset account, the adjusting entry reduces the asset to an amount that reflects its remaining future benefit and at the same time recognizes the actual expense incurred for the period.

For the unrecorded assets and liabilities discussed earlier, there was no original entry; the adjusting entry was the first time these items were recorded in the accounting records. For prepaid expenses, this is not the case. Because cash has already been paid (in the case of prepaid expenses), an original entry has been made to record the cash transaction. Therefore, the amount of the adjusting entry is the difference between what the updated balance should be and the amount of the original entry already recorded.

To illustrate adjustments for Prepaid Expenses, we will assume the following about our landscaping company:

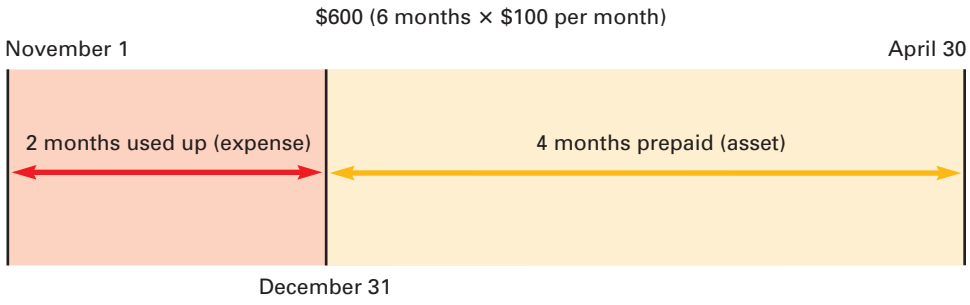
1. On November 1, 2003, we purchased a six-month insurance policy on our old truck, paying a $600 premium.
2. On December 15, 2003, we purchased several months worth of supplies (fertilizer, weed killer, etc.) at a total cost of $350. At year-end, $225 worth of supplies were still on hand.

For the prepaid insurance, we record the payment of $600 on November 1 as follows:

| | | | |
|---|---|---|---|
| Nov. 1 | Prepaid Insurance | 600 | |
| | Cash | | 600 |
| | *Paid a six-month insurance premium in advance.* | | |

This entry shows that one asset (Cash) has been exchanged for another asset (Prepaid Insurance). Over the next six months we will use the auto insurance and the asset, Prepaid Insurance, will slowly be used up. As the asset is used, its cost is recorded as an expense.

At year-end, only those assets that still offer future benefits to the company should be reported on the balance sheet. Thus, an adjustment is required to reduce the prepaid insurance account to reflect the fact that only four months of prepaid insurance remain. See the following time line.




The adjusting journal entry to bring the original amounts to their updated balances at year-end is:

| | | | |
|---|---|---|---|
| Dec. 31 | Insurance Expense | 200 | |
| | Prepaid Insurance | | 200 |
| | *To record insurance expense for two months:* | | |
| | *2 × $100 = $200.* | | |

When the adjusting entry is journalized and posted, the proper amount of insurance expense ($200) will be shown as an expense on the income statement and the proper amount of prepaid insurance ($400) will be carried forward to the next period as an asset on the balance sheet. This is illustrated in the following T-accounts:

| | Prepaid Insurance | | Cash | | Insurance Expense | |
|---|---|---|---|---|---|---|
| Original entry (11/1/03) | 600 | | | 600 | | |
| Adjusting entry (12/31/03) | | 200 | | | 200 | |
| Updated balances (12/31/03) | 400 | | | | 200 | |
| | To balance sheet | | | | To income statement | |

**caution**

The terms *supplies* and *inventory* are often confused. Supplies include such items as paper, pencils, and soap that might be used in an office or a warehouse. Inventory includes only those items held for resale to customers or for direct use in the manufacture of products.

When supplies are consumed in the normal course of business, the asset account (Supplies on Hand) must be adjusted and the used up portion charged as an operating expense (Supplies Expense) on the income statement. Thus, the adjustment for supplies is handled the same way as for any other prepaid asset.

We initially recorded $350 of supplies as an asset:

| | | | |
|---|---|---|---|
| Dec. 15 | Supplies on Hand | 350 | |
| | Cash | | 350 |
| | *Purchased supplies.* | | |

At year-end, an adjustment must be made to recognize that only $225 worth of supplies remains. This also implies that $125 ($350 − $225) of the supplies have been used and should be charged to expense. The entries are summarized in the following T-accounts:

| | Supplies on Hand | | Cash | | Supplies Expense | |
|---|---|---|---|---|---|---|
| Original entry (12/15/03) | 350 | | | 350 | | |
| Adjusting entry (12/31/03) | | 125 | | | 125 | |
| Updated balances (12/31/03) | 225 | | | | 125 | |
| | To balance sheet | | | | To income statement | |

The adjusting entry is:

| | | | |
|---|---|---|---|
| Dec. 31 | Supplies Expense | 125 | |
| | Supplies on Hand | | 125 |
| | *To record the use of supplies.* | | |

## Unearned Revenues

**unearned revenues** Cash amounts received before they have been earned.

Amounts received before the actual earning of revenues are known as **unearned revenues**. They arise when customers pay in advance of the receipt of goods or services. Because the company has received cash but has not yet given the customer the purchased goods or services, the unearned revenues are in fact liabilities. That is, the company must provide something in return for the amounts received. For example, a building contractor may require a deposit before proceeding on construction of a house. Upon receipt of the deposit, the contractor has unearned revenue, a liability. The contractor must construct the house to earn the revenue. If the house is not built, the contractor will be obligated to repay the deposit.

To illustrate the adjustments for unearned revenues, we will assume the following about our landscaping company:

> On December 1, a client pays you $225 for three months of landscaping services to be provided for the period beginning December 1, 2003, and ending February 29, 2004. This client is going to Hawaii for an extended vacation and would like you to take care of the grounds in her absence.

**caution**

Unearned Revenue is a tricky name for a liability. Liabilities are reported in the balance sheet. Don t make the mistake of including Unearned Revenue with the revenues on the income statement.

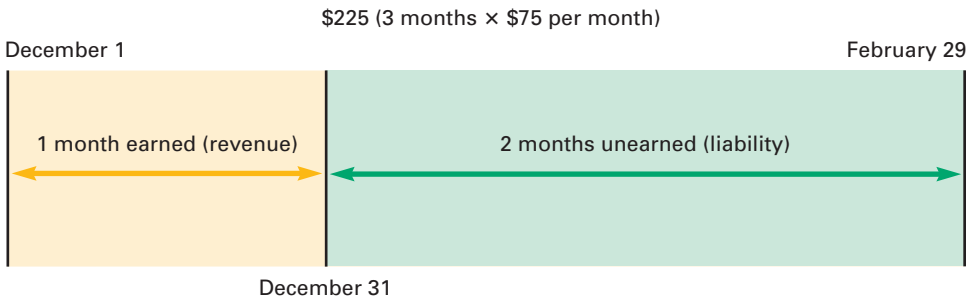
Typically, the original entry to record unearned revenue involves a debit to Cash and a credit to a liability account. In our example of landscaping revenue received three months in advance, the liability account would be Unearned Revenue, as shown on the next page.

The deposit received by a building contractor prior to the construction of a house is classified as unearned revenue.

| | | | |
|---|---|---|---|
| Dec. 1 | Cash | 225 | |
| | Unearned Revenue | | 225 |
| | *Received three months revenue in advance:* | | |
| | *$75 × 3 = $225.* | | |

The credit to the liability account, Unearned Revenue, is logically correct; until we provide the landscaping service, the revenue received in advance is unearned and is thus an obligation (liability).

The next step is to compute the updated balances at year-end. As illustrated with the following time line, on December 31, two months services (2 × $75 = $150) are still unearned and should be shown as a liability, Unearned Revenue, on the balance sheet. At the same time, $75, or one month s services, has been earned (1 × $75 = $75) and should be reported as Landscaping Revenue on the income statement.




Step 1 of the adjusting entry is to fix the balance sheet. The reported liability of $225 is too much since some of the unearned revenue has been earned. The remaining obligation is $150 (2 × $75), so the liability must be reduced (debited) by $75 ($225 − $150). The second half of the adjusting entry is used to correct the income statement. The $75 credit is made to Landscaping Revenue, reflecting the fact that one month s revenue has now been earned. The appropriate adjusting entry is:

| | | | |
|---|---|---|---|
| Dec. 31 | Unearned Revenue | 75 | |
| | Landscaping Revenue | | 75 |
| | *To record landscaping revenue for one month:* | | |
| | *$75 × 1 month = $75.* | | |

These results are illustrated in the following T-accounts:

| | Unearned Revenue | | Cash | | Landscaping Revenue | |
|---|---|---|---|---|---|---|
| Original entry (12/1/03) | | 225 | 225 | | | |
| Adjusting entry (12/31/03) | 75 | | | | | 75 |
| Updated balances (12/31/03) | | 150 | | | | 75 |
| | | To balance sheet | | | | To income statement |

After the adjusting entry has been made on December 31, our accounts show $225 of cash received. Of this amount, $75 has been earned (1 month s service × $75) and would be reported as Landscaping Revenue on the income statement; $150 will not be earned until the next reporting period and would be shown as a liability on the balance sheet.

We should emphasize two characteristics of adjusting entries. First, adjusting entries made at the end of an accounting period *do not involve cash*. Cash has either changed hands prior to the end of the period (as is the case with prepaid expenses or unearned revenues), or cash will

Airlines have a large amount of unearned revenue because customers pay for their tickets before the airlines provide the travel service. Visit the Web site of **UNITED AIRLINES**: **http://www.ual.com**

What title is given to Unearned Revenue for an airline? What liability was reported for Unearned Revenue in the most recent annual report?

change hands in a future period (as is the case with many unrecorded receivables and unrecorded liabilities). It is precisely because cash is *not* changing hands on the last day of the accounting period that most adjusting entries must be made.

Second, each adjusting entry involves a balance sheet account and an income statement account. In each case requiring adjustment, we are either generating an asset, using up an asset, recording an incurred but unrecorded expense, or recording revenue that has yet to be earned. Knowing that each adjusting entry has at least one balance sheet and one income statement account makes the adjustment process a little easier. Once you have determined that an adjusting entry involves a certain balance sheet account, you can then focus on identifying the corresponding income statement account that requires adjustment.

The 1999 financial statements for **GENERAL MOTORS** offer several illustrations of the potential impact of failing to make adjusting entries. GM reports that, as of December 31, 1999, it had unearned revenue totaling $9.504 billion. If GM had failed to make the adjustment necessary to record this unearned revenue, total revenue for 1999 would have been overstated by $9.504 billion, or 5.4%. In addition, GM reported that its total warranty liability as of December 31, 1999, was $15.284 billion. This warranty liability falls in the category of unrecorded liabilities that are not reported in the financial statements unless an appropriate adjusting entry is made. Finally, GM also reported a $35.521 billion asset related to future tax deductions; this asset would remain unrecorded unless a special adjusting entry were made at the end of the year to reflect the future tax benefits of events that had occurred in 1999 and preceding years.

## to summarize

To present financial statements that accurately report the financial position and the results of operations on an accrual basis for specific periods of time, adjusting entries must be made. The four main categories of adjustments are unrecorded receivables, unrecorded liabilities, prepaid expenses, and unearned revenues. In analyzing accounts at the end of an accounting cycle, adjusting entries are made in order to recognize all earned revenues and all incurred expenses and to report the proper balances in the asset, liability, and owners equity accounts. This requires a two-step analysis: (1) determine what adjustments are necessary to ensure that all asset and liability amounts have been properly recorded, and (2) determine which revenues or expenses must be adjusted to correspond with the changes in assets and liabilities recorded in step 1. With unrecorded receivables and unrecorded liabilities, there is no original entry. With prepaid expenses, the original entry includes a credit to Cash and a debit to an asset account. With unearned revenues, the original entry includes a debit to Cash and a credit to a liability account.

**3**

Explain the preparation of the financial statements, the explanatory notes, and the audit report.

## PREPARING FINANCIAL STATEMENTS

Once all transactions have been analyzed, journalized, and posted and all adjusting entries have been made, the accounts can be summarized and presented in the form of financial statements. Financial statements can be prepared directly from the data in the adjusted ledger accounts. The data must only be organized into appropriate sections and categories so as to present them as simply and clearly as possible. Once the financial statements are prepared, explanatory notes are written. These notes clarify the methods and assumptions used in preparing the statements. In addition, the auditor must review the financial statements to make sure they are accurate, reasonable, and in accordance with generally accepted accounting principles. Finally, the financial statements are distributed to external users who analyze them in order to learn more about the financial condition of the company.

## Financial Statement Preparation

To illustrate the preparation of financial statements from adjusted ledger accounts, a simplified adjusted trial balance for **GENERAL MOTORS** as of December 31, 1999, is provided in Exhibit 4-4.

From these data, an income statement and a balance sheet may be prepared for General Motors, as shown in Exhibits 4-5 and 4-6 on pages 145 and 146.

The ending retained earnings balance for General Motors for 1999 ($6,961), as reported on the balance sheet, is computed as follows:

| | |
|---|---|
| Beginning retained earnings balance (from the adjusted trial balance) | $2,326 |
| Add: Net income for the period (from the income statement) | 6,002 |
| Subtract: Dividends for the period (from the adjusted trial balance) | (1,367) |
| Ending retained earnings balance | $6,961 |

**exhibit 4-4** Simplified Adjusted Trial Balance

**General Motors Corporation**
**Simplified Adjusted Trial Balance**
**December 31, 1999**
**(in millions)**

| | Debits | Credits |
|---|---|---|
| Cash | $ 10,442 | |
| Investments | 12,519 | |
| Receivables | 86,721 | |
| Inventories | 10,638 | |
| Property and Equipment | 38,523 | |
| Intangible Assets | 8,527 | |
| Deferred Taxes | 15,277 | |
| Other Assets | 55,676 | |
| Investment in Leases | 36,407 | |
| Accounts Payable | | $ 21,516 |
| Accrued Expenses | | 32,854 |
| Current Debt | | 70,934 |
| Long-Term Debt | | 62,745 |
| Pensions and Other Retirement Benefits | | 37,505 |
| Other Liabilities | | 28,532 |
| Capital Stock and Other | | 13,683 |
| Retained Earnings | | 2,326 |
| Dividends | 1,367 | |
| Revenue from Sales | | 152,635 |
| Financing Revenues | | 14,734 |
| Other Income | | 9,189 |
| Cost of Sales | 126,809 | |
| Selling, General and Administrative Expenses | 18,845 | |
| Depreciation and Amortization | 12,318 | |
| Interest Expense | 7,750 | |
| Income Tax Expense | 3,118 | |
| Other Expenses | 1,716 | |
| Totals | $446,653 | $446,653 |

exhibit 4-5 Income Statement

**General Motors Corporation**
**Statement of Income**
**For the Year Ended December 31, 1999**
**(in millions)**

| | | |
|---|---|---|
| Revenue from sales | | $152,635 |
| Financing revenues | | 14,734 |
| Total revenues | | $167,369 |
| Cost of sales | $126,809 | |
| Selling, general and administrative expenses | 18,845 | |
| Depreciation and amortization | 12,318 | |
| Total operating expenses | | 157,972 |
| Operating income | | $ 9,397 |
| Other income | $ 9,189 | |
| Interest expense | (7,750) | |
| Income tax expense | (3,118) | |
| Other expenses | (1,716) | |
| Total other revenues and expenses | | (3,395) |
| Net income | | $ 6,002 |

This follows the computation of retained earnings discussed in Chapter 2.

A statement of cash flows is not shown here. To prepare a statement of cash flows, we need more detailed information about the nature of the cash receipts and cash disbursements during the year. The preparation of a statement of cash flows will be illustrated in Chapter 13.

## The Notes

As discussed in Chapter 2, the notes to the financial statements tell about the assumptions and methods used in preparing the financial statements and also give more detail about specific items. A sample of the kind of information that appears in the notes for General Motors financial statements is illustrated in Exhibit 4-7 on page 147. The first two notes, on revenue recognition and credit losses, illustrate how financial statement notes can summarize the accounting policies and assumptions that underlie the financial statements. The third note, on the debt associated with GM s financing subsidiary (GMAC), provides detailed information about a summary number that was reported in the financial statements. The fourth note, on GM s labor force, provides information that is deemed to be important to financial statement users, such as future labor costs, but that does not directly affect any of the reported historical financial statement numbers.

The financial statement notes serve to augment the summarized, numerical information contained in the financial statements. To highlight the importance of the notes, many financial statements have the following message printed at the bottom: The notes are an integral part of these financial statements.

## The Audit

As mentioned in Chapter 2, an independent audit, by CPAs from outside the company, is often conducted to ensure that the financial statements have been prepared in conformity with generally accepted accounting principles. With respect to the financial statements of General Motors, the audit procedures conducted by the external auditor, DELOITTE & TOUCHE, would probably include the following checks.

**REVIEW OF ADJUSTMENTS** As you learned in the first part of this chapter, adjusting entries usually require more analysis, and more judgment, than do the regular journal entries recorded throughout the year. As part of the audit, the auditor will review these adjusting en-

**exhibit 4-6** Balance Sheet

**General Motors Corporation**
**Balance Sheet**
**December 31, 1999**
**(in millions)**

| | | |
|---|---|---|
| **Assets** | | |
| Current assets: | | |
| Cash | $10,442 | |
| Investments | 12,519 | |
| Receivables | 86,721 | |
| Inventories | 10,638 | |
| Total current assets | | $120,320 |
| Long-term assets: | | |
| Property and equipment | $38,523 | |
| Intangible assets | 8,527 | |
| Deferred taxes | 15,277 | |
| Other assets | 55,676 | |
| Investment in leases | 36,407 | |
| Total long-term assets | | 154,410 |
| Total assets | | $274,730 |
| **Liabilities and Owners Equity** | | |
| Current liabilities: | | |
| Accounts payable | $21,516 | |
| Accrued expenses | 32,854 | |
| Current debt | 70,934 | |
| Total current liabilities | | $125,304 |
| Long-term debt | | 62,745 |
| Pensions and other retirement benefits | | 37,505 |
| Other liabilities | | 28,532 |
| Total liabilities | | $254,086 |
| Owners equity | | |
| Capital stock and other | $13,683 | |
| Retained earnings | 6,961 | |
| Total owners equity | | 20,644 |
| Total liabilities and owners equity | | $274,730 |

Note: This balance sheet is not an exact replica of General Motors actual balance sheet due to simplifying modifications for this exhibit.

tries. Auditors pay particular attention to the adjustments involving unrecorded expenses. As mentioned in the text, companies don t like making these adjusting entries, because they increase reported liabilities and reduce reported net income. Accordingly, the auditor should review the business events of the year to make sure that no expenses have been left unrecorded.

**SAMPLE OF SELECTED ACCOUNTS** For a number of accounts, the auditor undertakes a sampling process to see whether the items reported in the balance sheet actually exist. For example, General Motors reports an ending cash and equivalents balance of $10,442,000,000. The auditor will ask to see bank statements and will probably call the bank(s) to verify the existence of the cash. For inventory, the auditor will ask to physically see the inventory and will conduct a spot check to see whether the company inventory records match what is actually in the warehouse.

**REVIEW OF ACCOUNTING SYSTEMS** The auditor will also evaluate General Motors accounting systems. If a company has a good accounting system, with all transactions being recorded

exhibit 4-7 General Motors: Notes to the Financial Statements

**General Motors Corporation**
**Notes to the Financial Statements (partial list)**
**For the Year Ended December 31, 1999**

**Revenue Recognition:** Sales are generally recorded when products are shipped . . . to independent dealers.

**Allowance for Credit Losses:** Receivables are charged off [i.e., removed from the books] as soon as it is determined that the collateral cannot be repossessed, generally not more than 150 days after default.

**Debt:** Debt was as follows (in millions):

| | Weighted-Average Interest Rate | December 31, 1999 | December 31, 1998 |
|---|---|---|---|
| Payable within one year: | | | |
| Current portion of debt | 6.6% | $ 14,996 | $ 12,701 |
| Commercial paper | 5.8% | 33,229 | 34,487 |
| All other | 4.6% | 18,727 | 15,208 |
| Payable beyond one year: | | | |
| 2000 | | | 13,154 |
| 2001 | 6.0% | 16,854 | 10,322 |
| 2002 | 5.7% | 15,100 | 8,561 |
| 2003 | 6.1% | 8,786 | 7,919 |
| 2004 | 6.6% | 5,550 | 1,208 |
| 2005 and after | 7.4% | 9,662 | 4,864 |
| Unamortized discount | | (622) | (671) |
| Total debt | | $122,282 | $107,753 |

**Labor Force:** The 1999 United Auto Workers (UAW) labor contract was ratified on October 13, 1999, covering a four-year term from 1999 2003. The contract included an annual salary increase of 3% per year, an up-front signing bonus of $1,350 per UAW employee. . . . The 1999 contract includes job security and sourcing provisions containing an employment floor set at 95% of 1996 employment levels in the event of net outsourcing.

in an efficient, orderly way, then the auditor has greater reason to be confident that the financial statements are reliable. On the other hand, if the company s accounting system is haphazard, with many missing documents and unexplained discrepancies, then the auditor must do more detailed work to verify the financial statements.

If the auditor finds that the financial statements have been prepared in conformance with generally accepted accounting principles, then the auditor provides a report to that effect. This report is attached and distributed as part of the financial statements. The audit report is discussed in more detail in Chapter 5.

## to summarize

The adjusted trial balance provides the raw material for the preparation of the balance sheet and the income statement. The notes to the financial statements provide further information about the methods and assumptions used in preparing the financial statements as well as further detail about certain financial statement items. The audit is conducted by a CPA from outside the company who reviews the adjusting entries, performs tests to check the balances of selected accounts, and reviews the condition of the accounting systems.

**4**

Perform a systematic analysis of financial statements.

# ANALYZING FINANCIAL STATEMENTS

Financial statements are prepared in order to be used. Once the balance sheet, income statement, statement of cash flows, notes, and audit report of a company are completed, the whole package is distributed to bankers, suppliers, and investors to be used in evaluating the company s financial health. Financial statement analysis was introduced in Chapter 2 with illustrations of the computation and interpretation of selected financial ratios. That discussion is extended here with the introduction of two general tools of financial statement analysis: the DuPont framework and common-size financial statements.

## DuPont Framework

**return on equity** A measure of the amount of profit earned per dollar of investment, computed by dividing net income by equity.

As discussed in Chapter 2, **return on equity** (Net Income/Equity) is the single measure that summarizes the financial health of a company. Return on equity can be interpreted as the number of cents of net income an investor earns in one year by investing one dollar in the company. Return on equity (ROE) for **GENERAL MOTORS** for the year 1999 is computed below ($ in millions):

| | |
|---|---|
| Net Income | $6,002 |
| Equity | $20,644 |
| Return on Equity | 29.1% |

**DuPont framework** A systematic approach for breaking down return on equity into three ratios: profit margin, asset turnover, and assets-to-equity ratio.

The **DuPont framework** (named after a system of ratio analysis developed internally at DuPont in the early part of the twentieth century) provides a systematic approach to identifying general factors contributing to return on equity. The insight behind the DuPont framework is that ROE can be decomposed into three components, as shown below.

$$\text{Return on Equity} = \text{Profitability} \times \text{Efficiency} \times \text{Leverage}$$

$$= \text{Profit Margin} \times \text{Asset Turnover} \times \text{Assets-to-Equity Ratio}$$

$$\frac{\text{Net Income}}{\text{Equity}} = \frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

For each of the three ROE components profitability, efficiency, and leverage there is a correlating ratio that summarizes a company s performance in that area. These ratios are as follows:

**profit margin** A measure of the number of pennies in profit generated from each dollar of revenue; calculated by dividing net income by revenue.

**asset turnover** A measure of company efficiency, computed by dividing revenue by total assets.

**assets-to-equity ratio** A measure of the number of dollars of assets a company is able to acquire using each dollar of equity; calculated by dividing assets by equity.

**Profit margin** is computed as (Net Income/Revenue) and is interpreted as the number of pennies in profit generated from each dollar of revenue.
**Asset turnover** is computed as (Revenue/Assets) and is interpreted as the number of dollars in revenue generated by each dollar of assets.
**Assets-to-equity ratio** is computed as (Assets/Equity) and is interpreted as the number of dollars of assets a company is able to acquire using each dollar invested by stockholders.

The DuPont analysis of General Motors ROE for 1999 is as follows:

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Revenue}} \times \frac{\text{Revenue}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

$$\frac{\$6{,}002}{\$20{,}644} = \frac{\$6{,}002}{\$176{,}558} \times \frac{\$176{,}558}{\$274{,}730} \times \frac{\$274{,}730}{\$20{,}644}$$

$$29.1\% = 3.4\% \times 0.64 \times 13.31$$

These three ratio values can be interpreted as follows:

GM earned 3.4 cents in profit for each dollar in revenue.
GM generated $0.64 in revenue for every dollar of assets.
For every dollar invested by GM shareholders, GM was able to acquire $13.31 in assets; additional assets were acquired with borrowed funds.

Is it good for a company to have a high assets-to-equity ratio?

Evaluation of whether these ratio values are too high or too low involves comparing the computed values to the ratio values of other companies in the same industry as General Motors. In addition, this year s ratio values can be compared to GM s own ratio values in past years. For example, if other companies in the auto industry have profit margins of 7.0%, it appears that GM s profitability (3.4%) is lower than that of its competitors. If the asset turnover value for GM s competitors is 1.00, the 0.64 value for GM suggests that GM is less efficient at using its assets to generate sales.

**common-size financial statements** Financial statements achieved by dividing all financial statement numbers by total revenues for the year.

## Common-Size Financial Statements

A quick and easy way to get more information out of the financial statements is to divide all financial statement numbers for a given year by the total revenues for the year. The resulting financial statements, called **common-size financial statements**, show all amounts for a given year as a percentage of revenues for that year. A common-size income statement for General Motors, based on the income statement in Exhibit 4-5, is shown in Exhibit 4-8.

**fyi**

The amount of cash held by General Motors is quite low 5.9% of revenues. For comparison, look at **MICROSOFT** s financial statements at the end of the text and you ll see that Microsoft has a very high 1999 cash balance equal to 87.3% of total revenues.

If General Motors overall profitability is lower than its industry competitors, the common-size income statement can be used to pinpoint exactly where the problem lies. For example, if General Motors competitors have cost of sales that is just 65.0% of total revenue, then the 71.8% for GM suggests that this expense may be too high.

A common-size balance sheet also expresses each amount as a percentage of total revenue for the year. A common-size balance sheet for General Motors, based on the balance sheet in Exhibit 4-6, is shown in Exhibit 4-9.

The most informative section of the common-size balance sheet is the asset section, which can be used to determine how efficiently a company is using its assets. For example, assume that GM s competitors have inventory levels equal to 5.0% of total revenues. This suggests that GM is maintaining higher inventory levels (6.0% of revenues) and is thus using its inventory less efficiently.

## to summarize

Financial statements are used by various interested parties to examine a company s financial health. Two general techniques for financial statement

**exhibit 4-8** Common-Size Income Statement

**General Motors Corporation**
**Common-Size Income Statement**
**For the Year Ended December 31, 1999**
**(in millions)**

| | Amounts | | % of Revenue |
|---|---|---|---|
| Revenue from sales | | $152,635 | |
| Financing revenues | | 14,734 | |
| Other income | | 9,189 | |
| Total revenues | | $176,558 | 100.0% |
| Cost of sales | $126,809 | | 71.8% |
| Selling, general and administrative expenses | 18,845 | | 10.7% |
| Depreciation and amortization | 12,318 | | 7.0% |
| Interest expense | 7,750 | | 4.4% |
| Income tax expense | 3,118 | | 1.8% |
| Other expenses | 1,716 | 170,556 | 1.0% |
| Net income | | $ 6,002 | 3.4% |

exhibit 4-9 Common-Size Balance Sheet

**General Motors Corporation**
**Common-Size Balance Sheet**
**December 31, 1999**
**(in millions)**

| | Amounts | % of Revenue |
|---|---|---|
| **Assets** | | |
| Cash | $ 10,442 | 5.9% |
| Investments | 12,519 | 7.1% |
| Receivables | 86,721 | 49.1% |
| Inventories | 10,638 | 6.0% |
| Property and equipment | 38,523 | 21.8% |
| Intangible assets | 8,527 | 4.8% |
| Deferred taxes | 15,277 | 8.7% |
| Other assets | 55,676 | 31.5% |
| Investment in leases | 36,407 | 20.6% |
| Total assets | $274,730 | 155.6%* |
| **Liabilities and Owners Equity** | | |
| Accounts payable | $ 21,516 | 12.2% |
| Accrued expenses | 32,854 | 18.6% |
| Current debt | 70,934 | 40.2% |
| Long-term debt | 62,745 | 35.5% |
| Pensions and other retirement benefits | 37,505 | 21.2% |
| Other liabilities | 28,532 | 16.2% |
| Capital stock and other | 13,683 | 7.7% |
| Retained earnings | 6,961 | 3.9% |
| Total liabilities and equities | $274,730 | 155.6%* |

*Difference due to rounding.

## business environment essay

**Market Efficiency: Can Financial Statement Analysis Help You Win in the Stock Market?** An efficient market is one in which information is reflected rapidly in prices. For example, if the real estate market in a city is efficient, then news of an impending layoff at a major employer in the city should quickly result in lower housing prices because of an anticipated decrease in demand. The major stock exchanges in the United States are often considered to be efficient markets in the sense that information about specific companies or about the economy in general is reflected almost immediately in stock prices. One implication of market efficiency is that, since current stock prices reflect all available information, future movements in stock prices should be unpredictable.

It seems clear that stock markets in the United States are efficient in a general sense, but accumulated evidence suggests the existence of a number of puzzling anomalies in the form of predictable patterns of stock returns. For example, prices tend to continue to drift upward for weeks or months after favorable earnings news is released. In addition, prices continue to climb for at least a year after a stock split is announced.

From an accounting standpoint, market efficiency relates to the usefulness of so-called fundamental analysis. Fundamental analysis is the practice of using financial data to calculate the underlying value of a firm and using this underlying value to identify over-

analysis are the DuPont framework and common-size financial statements. The DuPont framework is based on the insight that return on equity can be separated into three components, each with a correlating ratio: profitability (profit margin), efficiency (asset turnover), and leverage (assets-to-equity). Preparing common-size financial statements involves dividing all financial statement numbers by total revenue for the year.

## 5 CLOSING THE BOOKS

5 Complete the closing process in the accounting cycle.

We have almost reached the end of the accounting cycle. Thus far, the accounting cycle has included analyzing documents, journalizing transactions, posting to the ledger accounts, determining account balances, preparing a trial balance, making adjusting entries, and preparing the financial statements. Just two additional steps are needed: (1) journalizing and posting closing entries and (2) preparing a post-closing trial balance.

### Real and Nominal Accounts

**real accounts** Accounts that are not closed to a zero balance at the end of each accounting period; permanent accounts appearing on the balance sheet.

**nominal accounts** Accounts that are closed to a zero balance at the end of each accounting period; temporary accounts generally appearing on the income statement.

To explain the closing process, we must first define two new terms. Certain accounts are referred to as **real accounts**. These accounts report the cumulative increases and decreases in certain account balances from the date the company was organized. Real accounts (assets, liabilities, and owners equity) appear on the balance sheet and are permanent; they are not closed to a zero balance at the end of each accounting period. Balances existing in real accounts at the end of a period are carried forward to the next period.

Other accounts are known as **nominal accounts**. These accounts (revenues, expenses, and dividends) are temporary; they are really just subcategories of Retained Earnings and are reduced to a zero balance through the closing process at the end of each accounting period. Thus, nominal accounts begin with a zero balance at the start of each accounting cycle. Transactions throughout the period (generally a year) are journalized and posted to the nominal accounts. These are used to accumulate and classify all revenue and expense items, and also dividends, for that

and underpriced stocks. The notion of fundamental analysis is in conflict with market efficiency, because the analysis works only if current stock prices do not fully reflect all available accounting information. For this reason, fundamental analysis has frequently been regarded with skepticism by academics. A growing body of academic research, however, suggests that accounting data may be useful in predicting future stock returns. Ou and Penman (1989) and Holthausen and Larcker (1992) were the first to demonstrate that financial ratios derived from publicly available financial statements can be used to successfully forecast stock returns for the coming year. More recently, Abarbanell and Bushee (1998) showed that, using financial ratios to predict future earnings performance, one can selectively invest in companies and earn an abnormal return of 13.2% per year. An abnormal return is the return over and above what one would earn with a diversified portfolio of stocks. So, contrary to what is expected of an efficient stock market, it looks like you *can* use publicly available accounting data to make money in the U.S. stock market.

**Sources:** Jane A. Ou and Stephen H. Penman, Financial Statement Analysis and the Prediction of Stock Returns, *Journal of Accounting and Economics*, November 1989, p. 295; Robert W. Holthausen and David F. Larcker, The Prediction of Stock Returns Using Financial Statement Information, *Journal of Accounting and Economics*, June 1992, p. 373; Jeffery S. Abarbanell and Brian J. Bushee, Abnormal Returns to a Fundamental Analysis Strategy, *The Accounting Review*, January 1998, p. 19.

**fyi**

In a proprietorship or a partnership, the nominal accounts are closed to the owners permanent capital accounts instead of to Retained Earnings.

period. At the end of the accounting period, adjustments are made, the income statement is prepared, and the balances in the temporary accounts are then closed to Retained Earnings, a permanent account. These closing entries bring the income statement accounts back to a zero balance, which makes the accounts ready for a new accounting period. In addition, the closing entries transfer the net income or loss for the accounting period to Retained Earnings and reduce Retained Earnings for any dividends. Without closing entries, revenue and expense balances would extend from period to period, making it difficult to isolate the operating results of each accounting period.

## Closing Entries

The actual mechanics of the closing process are not complicated. Revenue accounts normally have credit balances and are closed by being debited; expense accounts generally have debit balances and are closed by being credited. The difference between total revenues and total expenses represents the net income (or net loss) of the entity. For a corporation, net income is credited to Retained Earnings because income increases owners equity. A net loss would be debited to Retained Earnings because a loss decreases owners equity.

To illustrate the closing process, we will again refer to **GENERAL MOTORS** financial information as discussed earlier on pages 144 146. The closing journal entry is:

**closing entries** Entries that reduce all nominal, or temporary, accounts to a zero balance at the end of each accounting period, transferring their preclosing balances to a permanent balance sheet account.

| | | | |
|---|---|---|---|
| Dec. 31 | Revenue from Sales | 152,635 | |
| | Financing Revenues | 14,734 | |
| | Other Income | 9,189 | |
| | Cost of Sales | | 126,809 |
| | Selling, General and Administrative Expenses | | 18,845 |
| | Depreciation and Amortization | | 12,318 |
| | Interest Expense | | 7,750 |
| | Income Tax Expense | | 3,118 |
| | Other Expenses | | 1,716 |
| | Retained Earnings | | 6,002 |
| | *To close revenues and expenses to Retained Earnings.* | | |

**caution**

Don t close real accounts! Consider the negative implications of eliminating all your asset accounts at the end of the year. Nominal accounts are closed because they are just temporary subaccounts of Retained Earnings.

**Closing entries** must be posted to the appropriate ledger accounts. Once posted, all nominal accounts will have a zero balance; that is, they will be closed.

The dividends account is also a nominal (temporary) account that must be closed at the end of the accounting period. However, dividends are not expenses and will not be reported on an income statement; they are distributions to stockholders of part of a corporation s earnings. Thus, dividends reduce retained earnings. When dividends are declared by the board of directors of a corporation, the amount that will be paid is debited to Dividends and credited to a liability account, Dividends Payable, or to Cash if paid immediately. Because Dividends is a temporary account, it must be closed to Retained Earnings at the end of the accounting period. The dividends account is closed by crediting it and by debiting Retained Earnings, thereby reducing owners equity, as illustrated below for General Motors.

| | | | |
|---|---|---|---|
| Dec. 31 | Retained Earnings | 1,367 | |
| | Dividends | | 1,367 |
| | *To close Dividends to Retained Earnings.* | | |

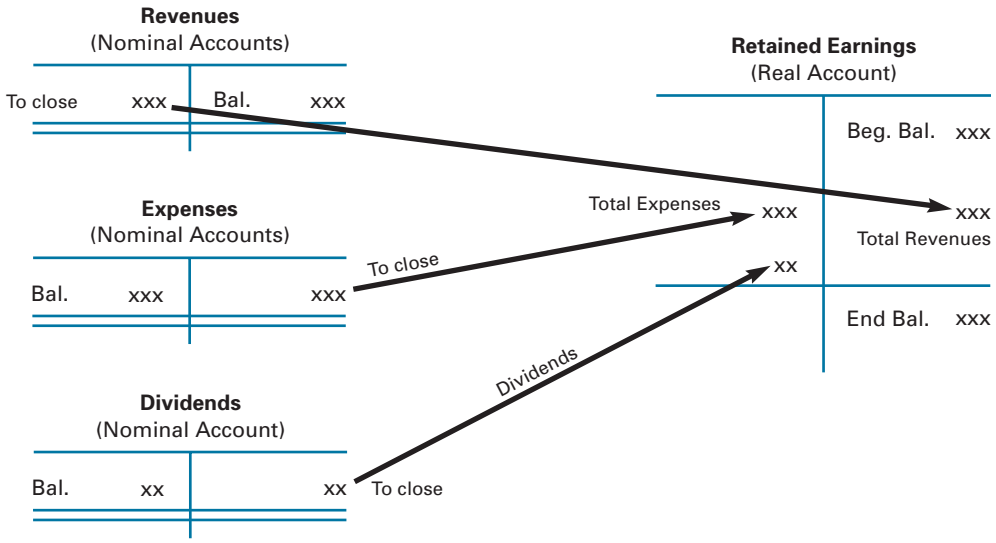
**post-closing trial balance** A listing of all real account balances after the closing process has been completed; provides a means of testing whether total debits equal total credits for all real accounts prior to beginning a new accounting cycle.

The books are now ready for a new accounting cycle. The closing process for the revenues, expenses, and dividends of a corporation is shown schematically in Exhibit 4-10.

## Preparing a Post-Closing Trial Balance

An optional last step in the accounting cycle is to balance the accounts and to prepare a **post-closing trial balance**. The accounts are to be balanced debits and credits added and a balance

**exhibit 4-10** The Closing Process




determined only after the closing entries have been recorded and posted in the general ledger. The information for the post-closing trial balance is then taken from the ledger. The nominal accounts will not be shown since they have been closed and thus have zero balances. Only the real accounts will have current balances. This step is designed to provide some assurance that the previous steps in the cycle have been performed properly, prior to the start of a new accounting period. Exhibit 4-11 illustrates a post-closing trial balance for General Motors Corporation.

**exhibit 4-11** Post-Closing Trial Balance

**General Motors Corporation**
**Post-Closing Trial Balance**
**December 31, 1999**
**(in millions)**

| | Debits | Credits |
|---|---|---|
| Cash | $ 10,442 | |
| Investments | 12,519 | |
| Receivables | 86,721 | |
| Inventories | 10,638 | |
| Property and Equipment | 38,523 | |
| Intangible Assets | 8,527 | |
| Deferred Taxes | 15,277 | |
| Other Assets | 55,676 | |
| Investment in Leases | 36,407 | |
| Accounts Payable | | $ 21,516 |
| Accrued Expenses | | 32,854 |
| Current Debt | | 70,934 |
| Long-Term Debt | | 62,745 |
| Pensions and Other Retirement Benefits | | 37,505 |
| Other Liabilities | | 28,532 |
| Capital Stock and Other | | 13,683 |
| Retained Earnings | | 6,961 |
| Totals | $274,730 | $274,730 |

## to summarize

As part of the closing process, all nominal (temporary) accounts are closed to a zero balance. All real (permanent) accounts (balance sheet accounts for assets, liabilities, and owners equity) are carried forward to the new reporting period. All nominal accounts (revenues, expenses, and dividends) are closed to Retained Earnings. Revenue accounts are closed by being debited; expense accounts are closed by being credited. Dividends also must be closed to Retained Earnings by being credited. A post-closing trial balance may be prepared to provide some assurance that the previous steps in the cycle have been performed properly.

**6**

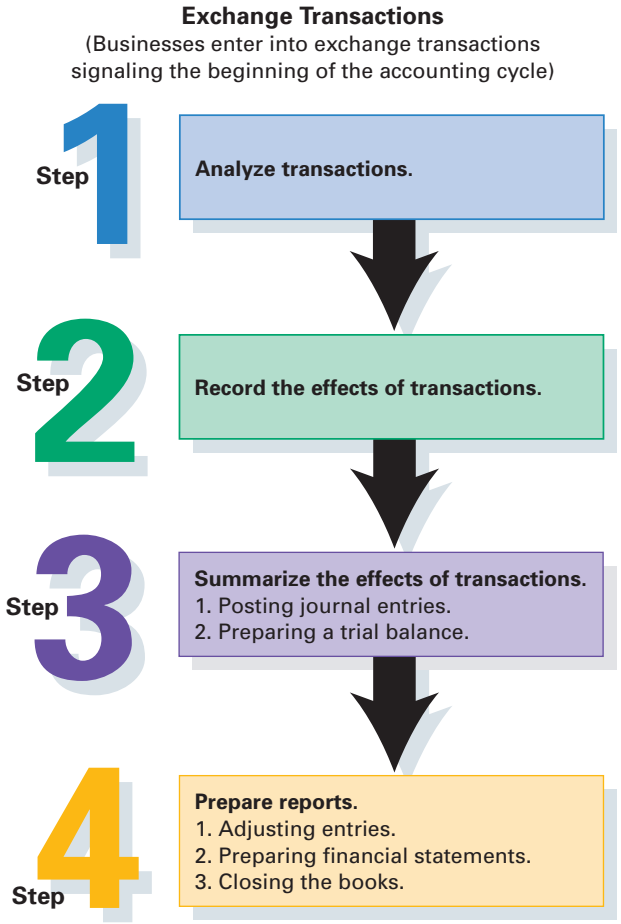
Understand how all the steps in the accounting cycle fit together.

## A SUMMARY OF THE ACCOUNTING CYCLE

We have now completed our discussion of the steps in the accounting cycle. By way of review, Exhibit 4-12 lists the sequence of the accounting cycle (presented earlier in Chapter 3). Many of the steps, such as analyzing transactions, occur continuously. Other steps, such as preparing the financial statements, generally occur only once during the cycle.

The financial statements that result from the accounting cycle provide useful information to investors, creditors, and other external users. These statements are included in the annual re-

**exhibit 4-12** Sequence of the Accounting Cycle



ports provided to stockholders. As illustrated earlier in the chapter, once the financial statements are made available to users, they can then be analyzed and compared to the financial statements of similar firms to detect strengths and weaknesses.

## expanded material

**Earlier in the chapter, the adjusting entries for prepaid expenses were made assuming that the prepayments were initially recorded as assets. Alternatively, the prepayments can be initially recorded as expenses; the correct amounts of assets and expenses can still be achieved through an appropriate year-end adjusting entry. Similarly, cash receipts in advance are sometimes initially recorded as revenues instead of as liabilities. Again, although not conceptually correct, it is done in the normal course of bookkeeping; any necessary adjustments can be made at year-end.**

**7**

Make adjusting entries for prepaid expenses and unearned revenues when the original cash amounts are recorded as expenses and revenues.

## ADJUSTING ENTRIES: ORIGINAL ENTRIES TO EXPENSE OR REVENUE

To illustrate the necessary adjusting process when expense prepayments are debited to an expense account, we will use the prepaid insurance example for the landscaping company that was illustrated earlier:

> On November 1, 2003, the landscaping company purchased a six-month insurance policy on its old truck, paying a $600 premium.

Assume that the $600 insurance prepayment was initially recorded as follows:

| | | | |
|---|---|---|---|
| Nov. 1 | Insurance Expense | 600 | |
| | Cash | | 600 |
| | *Paid six months insurance in advance:* | | |
| | *6 × $100 = $600.* | | |

Notice that the debit is to Insurance Expense instead of Prepaid Insurance (as illustrated earlier). In order to fix the balance sheet at December 31, the asset Prepaid Insurance must be debited (increased) for $400 (4 × $100) to reflect the fact that four months of prepaid insurance still remain. The entire $400 is debited to Prepaid Insurance because, with the original debit to Insurance Expense, the existing balance in Prepaid Insurance is $0. The credit half of the adjusting entry is used to fix the income statement. The $400 credit is to Insurance Expense, representing the fact that too much insurance expense was initially recorded and some is being removed. The appropriate adjusting entry is as follows:

| | | | |
|---|---|---|---|
| Dec. 31 | Prepaid Insurance | 400 | |
| | Insurance Expense | | 400 |
| | *To record prepaid insurance for four months:* | | |
| | *4 × $100 = $400.* | | |

Although this adjusting entry is different from the one shown previously, the net effect of the original and adjusting entries is exactly the same, as illustrated below.

*Original debit to Insurance Expense:*

| | Prepaid Insurance | | Cash | | Insurance Expense | |
|---|---|---|---|---|---|---|
| Original entry (11/1/03) | | | | 600 | 600 | |
| Adjusting entry (12/31/03) | 400 | | | | | 400 |
| Updated balances (12/31/03) | 400 | | | | 200 | |
| | To balance sheet | | | | To income statement | |

*Original debit to Prepaid Insurance (illustrated earlier on page 140):*

| | Prepaid Insurance | | Cash | | Insurance Expense | |
|---|---|---|---|---|---|---|
| Original entry (11/1/03) | 600 | | | 600 | | |
| Adjusting entry (12/31/03) | | 200 | | | 200 | |
| Updated balances (12/31/03) | 400 | | | | 200 | |
| | To balance sheet | | | | To income statement | |

Why would a company debit an insurance prepayment to Insurance Expense rather than adopting a more theoretically sound policy of debiting Prepaid Insurance?

Whether the initial debit for a prepaid expense is to a prepaid asset or to an expense, the key thing to remember in constructing the necessary adjusting entry is to first fix the balance sheet; the other half of the adjusting entry is used to fix the income statement.

To illustrate the necessary adjusting process when revenue received in advance is initially credited to a revenue account, we will use the unearned revenue example for our landscaping company that was illustrated earlier:

> On December 1, a client pays $225 for landscaping services to be provided over the period December 1, 2003, to February 29, 2004.

Assume that the $225 cash received for services was initially recorded as follows:

| | | | |
|---|---|---|---|
| Dec. 1 | Cash | 225 | |
| | Landscaping Revenue | | 225 |
| | *Received three months revenue in advance:* | | |
| | *$75 × 3 = $225.* | | |

On December 31, an adjusting entry must be made to reflect the fact that two months worth of this revenue is still unearned and represents a liability. This adjustment is made through a credit (increase) to Unearned Revenue of $150 ($75 × 2), thereby fixing the balance sheet. The corresponding debit is used to fix the income statement. A debit to Landscaping Revenue represents a decrease in revenue because some of the revenue originally recorded on December 1 has not yet been earned. The necessary adjusting entry is as follows:

| | | | |
|---|---|---|---|
| Dec. 31 | Landscaping Revenue | 150 | |
| | Unearned Revenue | | 150 |
| | *To record unearned revenue for two months:* | | |
| | *$75 × 2 = $150.* | | |

The sequence of entries differs when the original credit is to Landscaping Revenue rather than Unearned Revenue, but the end result is the same. Compare the ending balances in the following T-accounts:

*Original credit to Landscaping Revenue:*

| | Unearned Revenue | | Cash | | Landscaping Revenue | |
|---|---|---|---|---|---|---|
| Original entry (12/1/03) | | | 225 | | | 225 |
| Adjusting entry (12/31/03) | | 150 | | | 150 | |
| Updated balances (12/31/03) | | 150 | | | | 75 |
| | | To balance sheet | | | | To income statement |

*Original credit to Unearned Revenue (illustrated earlier on page 142):*

| | Unearned Revenue | | Cash | | Landscaping Revenue | |
|---|---|---|---|---|---|---|
| Original entry (12/1/03) | | 225 | 225 | | | |
| Adjusting entry (12/31/03) | 75 | | | | | 75 |
| Updated balances (12/31/03) | | 150 | | | | 75 |
| | | To balance sheet | | | | To income statement |

## to summarize

Prepayments are sometimes initially recorded as expenses instead of as prepaid expenses (assets); cash receipts for revenue in advance are sometimes initially recorded as revenues instead of as unearned revenues (liabilities). This requires an adjusting process that differs somewhat from that illustrated earlier in the chapter. No matter which approach is used, however, the resulting amounts reported in the balance sheet and the income statement are the same if the adjusting entries are made correctly.

# APPENDIX A: USING A WORK SHEET

**work sheet** A columnar schedule used to summarize accounting data.

A **work sheet** is a tool used by accountants to facilitate the preparation of financial statements. Unlike the financial statements, work sheets are for internal use only; they are not distributed to outsiders. Although the use of work sheets is optional, most accountants find them helpful for organizing large quantities of data. Many work sheets are now prepared on electronic spreadsheets, using a software package such as Lotus 1-2-3, Excel, or Quattro Pro.

## Preparing a Work Sheet

In preparing a work sheet, accountants first list the trial balance, then add any adjusting entries, and finally extend the combined amounts into the appropriate financial statement columns. The figures in these columns are used in preparing the income statement and the balance sheet. Additional analysis is required to prepare the statement of cash flows (see Chapter 13).

A work sheet will usually have a minimum of eight columns, as shown in Exhibit 4-13. The accounts are listed on the left side, and columns 1 and 2 indicate the account balances prior to adjustments (the unadjusted trial balance). Columns 3 and 4 are for adjusting entries. It should be noted that even when a work sheet is used to prepare financial statements, the adjusting entries still must be journalized and posted to the ledger accounts, as explained earlier in the chapter.

**exhibit 4-13** Eight-Column Work Sheet

**ITEC, Inc.**
**Work Sheet**
**December 31, 2003**

| | Trial Balance | | Adjustments | | Income Statement | | Balance Sheet | |
|---|---|---|---|---|---|---|---|---|
| **Account Titles** | **Debits** | **Credits** | **Debits** | **Credits** | **Debits** | **Credits** | **Debits** | **Credits** |
| Cash | 24,270 | | | | | | 24,270 | |
| Accounts Receivable | 3,000 | | | | | | 3,000 | |
| Inventory | 3,000 | | | | | | 3,000 | |
| Supplies on Hand | 250 | | | (d) 140 | | | 110 | |
| Prepaid Insurance | 480 | | | (b) 40 | | | 440 | |
| Accounts Payable | | 3,000 | | | | | | 3,000 |
| Unearned Rent Revenue | | 600 | (c) 100 | | | | | 500 |
| Capital Stock | | 20,000 | | | | | | 20,000 |
| Sales | | 34,700 | | | | 34,700 | | |
| Cost of Goods Sold | 21,000 | | | | 21,000 | | | |
| Salaries Expense | 1,500 | | (a) 700 | | 2,200 | | | |
| Truck Rental Expense | 4,800 | | | (e) 4,400 | 400 | | | |
| | 58,300 | 58,300 | | | | | | |
| Salaries Payable | | | | (a) 700 | | | | 700 |
| Insurance Expense | | | (b) 40 | | 40 | | | |
| Rent Revenue | | | | (c) 100 | | 100 | | |
| Supplies Expense | | | (d) 140 | | 140 | | | |
| Prepaid Truck Rental | | | (e) 4,400 | | | | 4,400 | |
| | | | 5,380 | 5,380 | 23,780 | 34,800 | 35,220 | 24,200 |
| Net Income (to balance) | | | | | 11,020 | | | 11,020 |
| | | | | | 34,800 | 34,800 | 35,220 | 35,220 |

Adjustments:
(a) Salaries Payable, $700
(b) Insurance Expense, $40
($480 ÷ 12 = $40 a month)
(c) Rent Revenue Earned, $100
(d) Supplies Expense, $140 ($250 − $110)
(e) Prepaid Truck Rental, $4,400
($4,800 ÷ 12 = $400; $400 × 11 months)

The last four columns of a work sheet are used for extending the unadjusted trial balance figures, plus or minus adjustments, into the appropriate financial statement columns. Revenue and expense accounts are extended into the income statement columns; asset, liability, and owners equity accounts into the balance sheet columns. The exact form of a work sheet is flexible, and its content depends on the type of business and the way a company handles certain transactions.

To illustrate the use of a work sheet, we will examine the operating activities for one year for ITEC, Inc. The work sheet for ITEC, Inc., using the eight-column format, is shown in Exhibit 4-13. The amounts in the trial balance columns are based on the following transactions. (Note that the company was organized on January 1, 2003.)

1. Issued capital stock for $20,000 cash.
2. Paid $4,800 cash to lease a truck for one year; one month s expense applicable to 2003.
3. Received $600 on December 1 from a tenant for six months rent ($100 per month).

4. Paid $480 for a one-year insurance policy; one month is expense applicable to 2003.
5. Purchased supplies for $250 cash.
6. Purchased inventory for $10,000 on account.
7. Sold inventory for $15,000 on account; cost of the merchandise sold was $8,000.
8. Collected $12,000 cash from customers accounts receivable.
9. Paid $7,000 cash for inventories bought in item (6) above.
10. Paid $1,500 for sales representatives salaries.
11. Purchased inventory for $14,000 cash.
12. Sold inventory for $19,700 cash; cost of the merchandise sold was $13,000.

After all transactions have been journalized and posted, the balances in the accounts can be listed in the first two columns of the work sheet as the unadjusted trial balance (see Exhibit 4-13). The columns are then added to make sure that total debits equal total credits. The following data are applicable to the necessary adjusting entries at December 31:

a. Salaries payable, $700. In item (10), $1,500 was paid to sales representatives. By the end of the year, an additional $700 in sales salaries had been earned but not yet paid.
b. Insurance expense, $40. In item (4), $480 was paid for insurance, debiting Prepaid Insurance. At the end of the year, only one-twelfth of this annual fee should be expensed ($480 ÷ 12 = $40); the balance ($440) should be shown as an asset, Prepaid Insurance.
c. Monthly rent revenue earned, $100. See item (3).
d. Supplies on hand, $110. Of the supplies purchased in item (5), some remain on hand and some have been used.
e. Prepaid truck rental, $4,400. In item (2), a truck was leased for one year for $4,800, payable in advance. (A lease is a formal rental agreement.) At the end of December, eleven-twelfths of the annual lease should be shown as an asset, Prepaid Truck Rental ($4,800 ÷ 12 = $400; $400 × 11 months = $4,400); one-twelfth ($400) should be shown as an expense.

As illustrated in Exhibit 4-13, these adjustments appear in the adjustments columns and are identified as entries (a) through (e). A key for the adjustments is usually included at the bottom of the work sheet. Some accounts that are involved in the adjusting entries have a zero balance before adjustments and are therefore not included in the trial balance. These accounts are added below those listed on the trial balance. The adjustments are then added to or subtracted from the account balances. If an eight-column work sheet is used, as in Exhibit 4-13, the results are extended to the appropriate income statement or balance sheet columns as debits or credits, respectively.

Note in Exhibit 4-13 that the income statement and the balance sheet column subtotals do not show the equality of debits and credits. A balancing figure must be added to both the income statement and the balance sheet to make total debits equal total credits. If credits (revenues) exceed debits (expenses) for the income statement column subtotals, a balancing debit amount ($11,020 in this case) must be added, reflecting pretax net income for the period. The same amount must also be added as a credit to the balance sheet columns, showing an increase in owners equity. If debits exceed credits for the income statement subtotals, there is a net loss for the period. This would be presented as a balancing credit amount on the income statement and a balancing debit amount on the balance sheet, showing a reduction in owners equity. In either case, a balancing figure is required to bring total debits equal to total credits for each set of columns.

## Special Considerations in Using a Work Sheet

Two items relating to ITEC s work sheet (Exhibit 4-13) require additional explanation: (1) the work sheet adjustment for income taxes and (2) reporting the ending retained earnings balance.

**WORK SHEET ADJUSTMENT FOR INCOME TAXES** To keep the ITEC illustration simple, we ignored income taxes. When a corporation earns income, however, it must pay income taxes. A year-end adjustment is required, debiting Income Tax Expense and crediting Income

Taxes Payable for the appropriate amount. When the taxes are actually paid, Income Taxes Payable is debited, and Cash is credited.

The adjustment for income taxes presents a minor problem on the work sheet because the amount of income taxes to be paid cannot be determined until net income (net loss) has been computed. One way to solve this problem is to subtotal the work sheet columns, determine the balancing figure for pretax income, multiply that figure by the tax rate to determine the amount of the tax, and then make the adjusting entry for Income Tax Expense and Income Taxes Payable the same way as other adjustments are made.

With this approach, both income tax accounts Income Tax Expense and Income Taxes Payable are added on the work sheet following the column subtotals. To illustrate, we assume that ITEC, Inc., is subject to a tax rate of 25%. The work sheet shown in Exhibit 4-13 would be completed as follows:

| | Adjustments | | Income Statement | | Balance Sheet | |
|---|---|---|---|---|---|---|
| | Debits | Credits | Debits | Credits | Debits | Credits |
| Subtotals | 5,380 | 5,380 | 23,780 | 34,800 | 35,220 | 24,200 |
| Income Tax Expense | 2,755 | | 2,755 | | | |
| Income Taxes Payable | | 2,755 | | | | 2,755 |
| Totals | 8,135 | 8,135 | 26,535 | 34,800 | 35,220 | 26,955 |
| Net Income (to balance) | | | 8,265* | | | 8,265 |
| Totals | | | 34,800 | 34,800 | 35,220 | 35,220 |

*[$34,800 − $23,780 = $11,020 to balance the income statement columns: $11,020 × 0.25 = $2,755 Income Tax Expense and Income Taxes Payable; the balance ($11,020 − $2,755 = $8,265) is net income.]

**REPORTING THE ENDING RETAINED EARNINGS BALANCE** We have explained and illustrated how the financial statements can be prepared from the income statement and balance sheet columns on the work sheet. To simplify the illustration (Exhibit 4-13), we assumed that ITEC, Inc., was organized on January 1, 2003, and therefore had no previous retained earnings balance. Normally, a work sheet will show the beginning retained earnings on the trial balance, which will be extended as a credit to the balance sheet columns. In addition, if a corporation has paid its stockholders dividends during the period, the dividends account will be shown on the trial balance and extended as a debit to the balance sheet columns. When preparing the balance sheet, these amounts must be considered in determining the ending retained earnings balance. The net income balancing figure on the work sheet is added to the beginning retained earnings amount; any amount shown for dividends is subtracted. The resulting figure is the amount of ending retained earnings to be reported on the balance sheet; thus:

Beginning Retained Earnings
\+ Net Income
− Dividends
Ending Retained Earnings

For the ITEC illustration, the beginning Retained Earnings balance was zero since the company had just been established. There also were no dividends paid. Therefore, the ending balance for retained earnings ($8,265) was simply the amount of net income for the period. For the next accounting period, ITEC would start with a balance of $8,265 in its retained earnings account, add the net income balancing figure for that period, and subtract any dividends to determine the ending retained earnings balance to report on the balance sheet.

The income statement and balance sheet for ITEC, Inc., as prepared from the work sheet, are shown in Exhibits 4-14 and 4-15, respectively.

**exhibit 4-14** Income Statement for ITEC, Inc.

**ITEC, Inc.**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Sales revenue | $34,700 | |
| Rent revenue | 100 | |
| Total revenues | | $34,800 |
| Less cost of goods sold | | 21,000 |
| Gross profit | | $13,800 |
| Less operating expenses: | | |
| Salaries expense | $ 2,200 | |
| Truck rental expense | 400 | |
| Insurance expense | 40 | |
| Supplies expense | 140 | 2,780 |
| Income before income taxes | | $11,020 |
| Income tax expense | | 2,755 |
| Net income | | $ 8,265 |

**exhibit 4-15** Balance Sheet for ITEC, Inc.

**ITEC, Inc.**
**Balance Sheet**
**December 31, 2003**

| | | |
|---|---|---|
| **Assets** | | |
| Cash | $24,270 | |
| Accounts receivable | 3,000 | |
| Inventory | 3,000 | |
| Supplies on hand | 110 | |
| Prepaid insurance | 440 | |
| Prepaid truck rental | 4,400 | |
| Total assets | | $35,220 |
| **Liabilities and Owners Equity** | | |
| Liabilities: | | |
| Accounts payable | $ 3,000 | |
| Unearned rent revenue | 500 | |
| Salaries payable | 700 | |
| Income taxes payable | 2,755 | $ 6,955 |
| Owners equity: | | |
| Capital stock | $20,000 | |
| Retained earnings | 8,265* | 28,265 |
| Total liabilities and owners equity | | $35,220 |

*Beginning Retained Earnings + Net Income − Dividends = Ending Retained Earnings.

# APPENDIX B: SPECIAL JOURNALS

So far we have shown all journal entries in general journal format, as explained in Chapter 3. With many businesses having hundreds or even thousands of transactions every day, it is impractical and inefficient to use only one journal. Instead, they group transactions into similar classes and use a **special journal** for each. These special journals can be maintained on paper or in a computerized system; the basic principles are the same. In this appendix, we refer to a manual system.

**special journal** A book of original entry for recording similar transactions that occur frequently.

## The Sales Journal

One of the most frequently occurring business transactions involves the sale of goods or services, either for cash or on credit. Cash sales are generally recorded in a cash receipts journal. When merchandise is sold on credit, a prenumbered sales invoice is prepared. This invoice specifies the date of the sale, the amount and kinds of merchandise sold, and the price. One copy of the invoice is sent to the accounting department to be used as the basis for an entry in the **sales journal**. This journal is a chronological listing of all credit sales, as shown in Exhibit 4-16.

**sales journal** A special journal in which credit sales are recorded.

This sales journal page has no columns for sales discounts (reductions in price offered to customers who pay within a specified period), sales returns, or sales taxes. Antler Corporation records all credit sales at their gross amounts and notes sales discounts at the time of collection (in the Cash Receipts Journal). Sales returns, which involve a debit to Sales Returns and Allowances and a credit to Accounts Receivable, are recorded by Antler in the general journal. Many companies include sales discounts and returns in the sales journal, but we have omitted them here for the sake of simplicity. (The concepts of sales discounts and returns are covered more fully in Chapter 6.) If Antler were operating in a state with sales taxes, the taxes would be entered in a Sales Taxes Payable (credit) column, with the total posted to the sales taxes payable account at the same time Accounts Receivable and Sales Revenue are posted. (The concept of sales taxes is covered more fully in Chapter 8.)

**exhibit 4-16** A Sample Page in a Sales Journal for Antler Corporation

**SALES JOURNAL**

| Date | Customer | Invoice No. | Post. Ref. | Amount |
|---|---|---|---|---|
| 2003 Jan. 2 | Lee Smith | 125 | 105.7 | 600 |
| 5 | Roger Jameson | 126 | 105.5 | 250 |
| 6 | Ralph Smith | 127 | 105.8 | 315 |
| 8 | John Anderson | 128 | 105.1 | 216 |
| 9 | Carl Hartford | 129 | 105.4 | 822 |
| 12 | Mike Taylor | 130 | 105.9 | 610 |
| 16 | Marvin Brinkerhoff | 131 | 105.3 | 507 |
| 23 | Roy Avondet | 132 | 105.2 | 125 |
| 27 | Jay Rasmussen | 133 | 105.6 | 350 |
| 28 | Jerry Woolsey | 134 | 105.11 | 816 |
| | | | | 4,611 |
| | | | | (105) (400) |

The sales journal differs from the general journal in several respects. First, because all transactions are similar, the entries do not require separate explanations. Second, there are no debit and credit columns because the total is always posted as a debit to Accounts Receivable (account 105) and a credit to Sales Revenue (account 400). Third, the sales journal includes a column for the sales invoice number for easy reference to a source of additional information.

Having a single total posted to Accounts Receivable saves time and keeps the general ledger in manageable form. However, it does make it difficult, if not impossible, for a company to monitor the activity of individual accounts. Maintaining a separate account for each customer within the general ledger creates a different sort of problem a voluminous general ledger with many accounts receivable accounts, plus Cash, Inventory, and so forth. The same problem exists for Accounts Payable.

To handle this problem, companies generally keep at least three ledgers: the general ledger, which contains all the balance sheet and income statement accounts; the accounts receivable subsidiary ledger; and the accounts payable subsidiary ledger. The **subsidiary ledgers** contain separate accounts (in alphabetical order) for each customer and creditor, showing all debits, credits, and a balance. They are called subsidiary ledgers because they back up, or support, the account balances in the general ledger. The total of all accounts in the accounts receivable subsidiary ledger, for example, equals the balance in Accounts Receivable in the general ledger. Accounts Receivable is called a **control account** because it summarizes the individual accounts in the accounts receivable subsidiary ledger. Exhibit 4-17 illustrates the relationship between the general and subsidiary ledgers.

**subsidiary ledger** A grouping of individual accounts that in total equal the balance of a control account in the general ledger.

**control account** A summary account in the general ledger that is supported by detailed individual accounts in a subsidiary ledger.

As the sales journal entries are posted to the accounts receivable subsidiary ledger accounts, the individual account numbers are entered in the sales journal posting reference column. The number of the sales journal page and the date of the transaction are similarly entered as a posting reference in the subsidiary accounts. These cross-references quickly direct accountants to the source of additional information, while serving as a means of checking their work. Exhibit 4-18 shows the posting of the sales transactions to the general ledger. Note that the total posted to Accounts Receivable in the general ledger equals the total of all postings to the accounts receivable subsidiary ledger.

## The Purchases Journal

A second frequently occurring transaction involves the purchase of merchandise for resale, either for cash or on credit. Cash purchases are recorded in a cash disbursements journal and will be discussed later. Credit purchases are chronologically recorded in a **purchases journal**. The individual entries are posted to accounts in the accounts payable subsidiary ledger throughout the accounting period. At the end of the period, the total is posted to both Accounts Payable and Purchases.

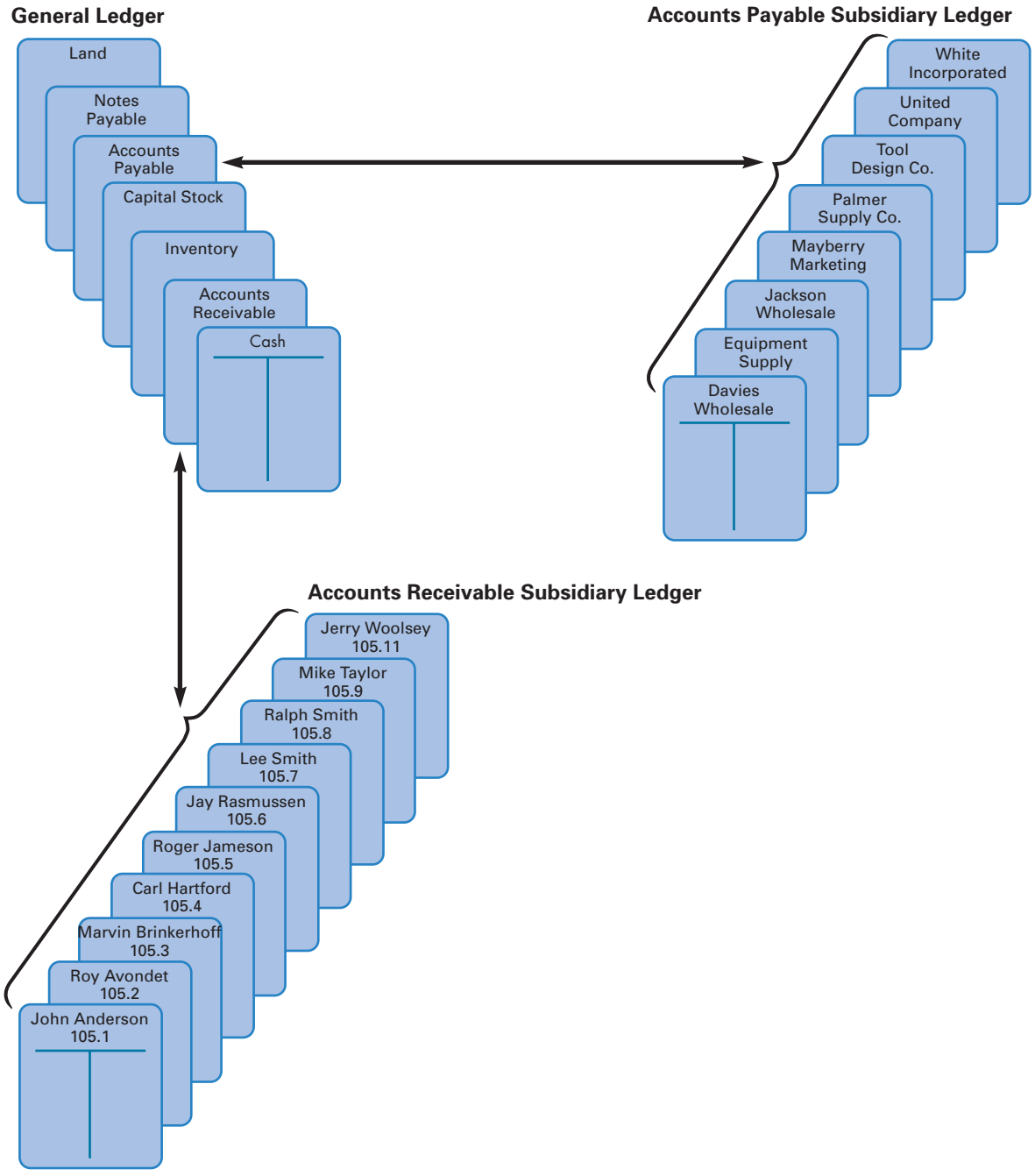
**purchases journal** A special journal in which credit purchases are recorded.

The purchases and sales journals are similar, except that the sales journal includes invoice numbers and the purchases journal includes invoice dates. The date is useful for identifying the beginning of a discount period. A sample page from a purchases journal is shown in Exhibit 4-19 on page 166. As with the sales journal, Antler Corporation handles discounts at the time of payment. (The concept of purchase discounts is covered more fully in Chapter 7.)

This purchases journal is used for recording credit purchases of inventory only. Credit purchases of equipment, supplies, other such items, and purchase returns would be recorded in the general journal. Exhibit 4-20 on page 167 illustrates the posting of the purchases journal to the accounts payable subsidiary ledger and to the general ledger.

Each purchase is posted to the individual creditor s account in the accounts payable subsidiary ledger; the total of $4,851 is posted to Accounts Payable (202) and Purchases (450) in the general ledger. Like the sales journal, the purchases journal is cross-referenced to the general and subsidiary ledgers. The cumulative total of all balances in the accounts payable subsidiary ledger equals the balance in the accounts payable account.

exhibit 4-17 The General and Subsidiary Ledgers



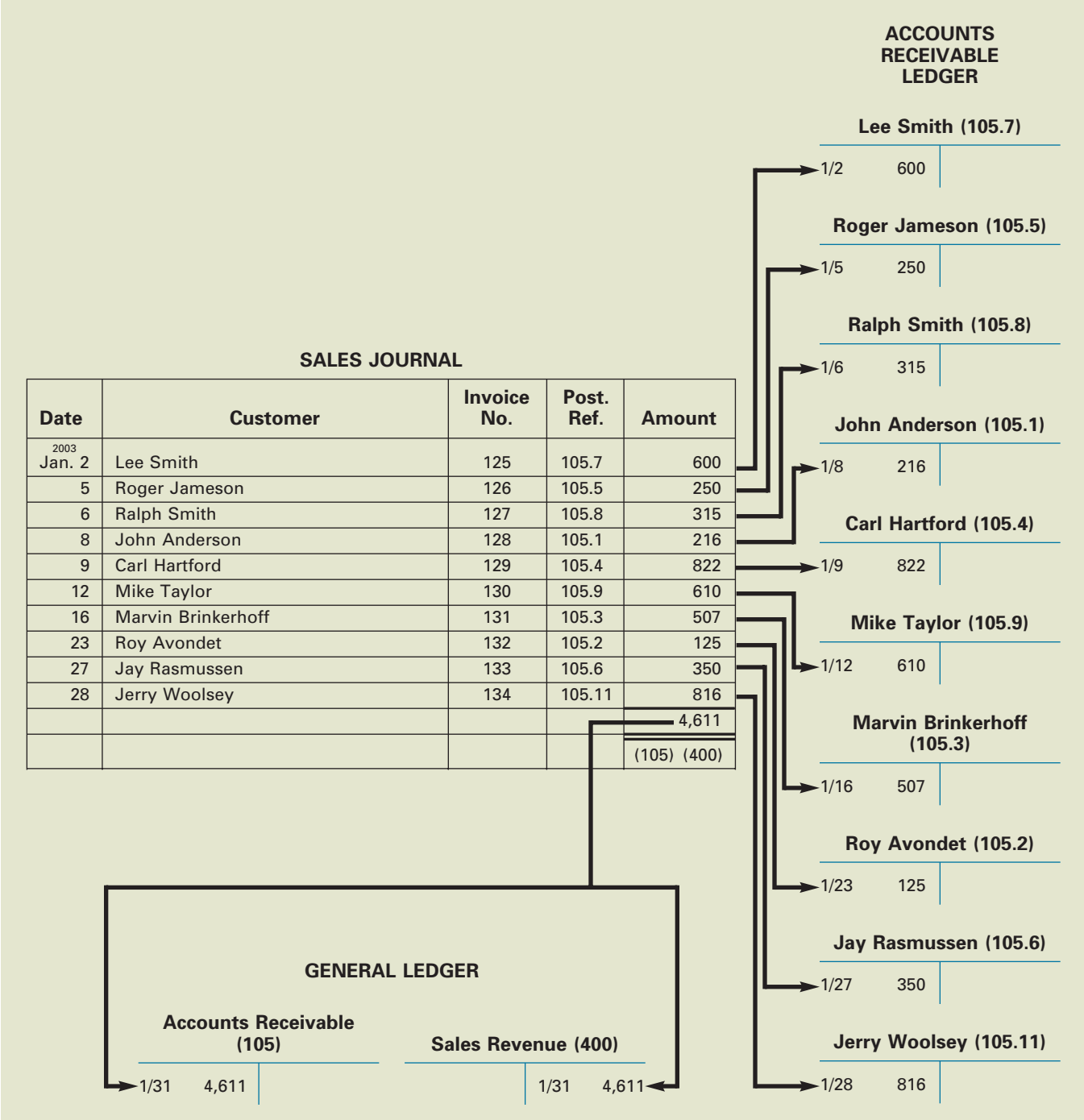

## The Cash Receipts Journal

**cash receipts journal** A special journal in which all cash received, from sales, interest, rent, or other sources, is recorded.

Another special journal is the **cash receipts journal**, which includes all cash received from sales, interest, rent, or other sources. Exhibit 4-21 on page 168 shows a typical page from a cash receipts journal and the posting of its entries.

The cash receipts journal usually includes columns for Cash (DR), Sales Discounts (DR), Accounts Receivable (CR), and Sales Revenue (CR). In addition, an Other Accounts (CR) column is used to record all irregular cash transactions, that is, all items that do not fall naturally into a labeled column such as Cash or Accounts Receivable. Examples are collections of in-

**exhibit 4-18** Posting from the Sales Journal




terest, rents, or notes receivable. The Other Accounts column is added for cross-checking purposes. A check mark (√) is placed below the total to indicate that the individual items have been posted.

Exhibit 4-21 shows that on January 7, $588 was received from Lee Smith in payment of a $600 bill (debit Cash, credit Accounts Receivable). The $12 difference is a 2% discount ($600 × 0.02 = $12) offered by Antler to customers who pay within 10 days (debit Sales Discounts). The $125 cash sale on January 12 was debited to Cash and credited to Sales Revenue. The in-

exhibit 4-19 A Sample Page in a Purchases Journal for Antler Corporation

**PURCHASES JOURNAL**

| Date | Supplier | Invoice Date | Post. Ref. | Amount |
|---|---|---|---|---|
| 2003 Jan. 2 | Mayberry Marketing | 2003 Jan. 1 | 202.4 | 300 |
| 5 | Jackson Wholesale | 4 | 202.3 | 616 |
| 6 | Equipment Supply | 5 | 202.2 | 485 |
| 12 | Davies Wholesale | 11 | 202.1 | 690 |
| 14 | Jackson Wholesale | 12 | 202.3 | 150 |
| 15 | Palmer Supply Co. | 14 | 202.5 | 810 |
| 22 | White Incorporated | 22 | 202.8 | 800 |
| 29 | United Company | 28 | 202.7 | 600 |
| 30 | Tool Design Co. | 29 | 202.6 | 400 |
| | | | | 4,851 |
| | | | | (202) (450) |

terest revenue collected on January 18 was credited to Other Accounts. Mike Taylor did not receive a sales discount because he did not pay within the 10-day discount period.

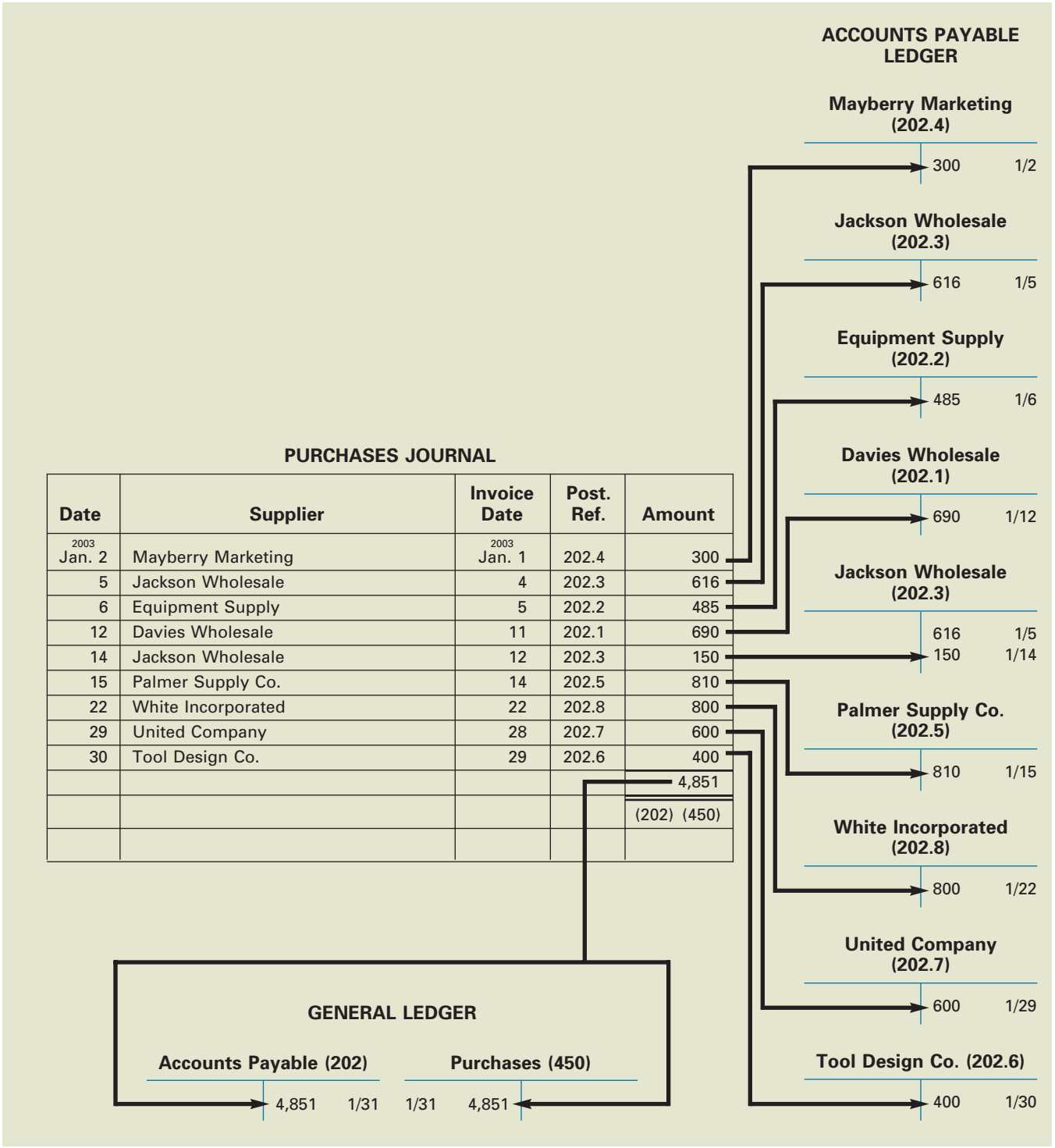
In posting the entries from the cash receipts journal to the general ledger, only those amounts in the Other Accounts (CR) column are handled individually; the number of each ledger account appears in the Post. Ref. column. For example, when the $150 payment was collected on January 9 and posted to Notes Receivable, the account number 103 was entered in the Post. Ref. column. All other columns are posted to the general ledger as totals at the end of each accounting period. The total of the debit columns is compared with the total of the credit columns to make sure that total debits equal total credits. As the totals are posted, their account numbers are entered just below the column totals. The individual entries in the Accounts Receivable (CR) column are posted to the customers accounts in the accounts receivable subsidiary ledger. Subsidiary account numbers are placed in the Post. Ref. column to indicate that these subsidiary postings have been made.

## The Cash Disbursements Journal

**cash disbursements journal**
A special journal in which all cash paid out for supplies, merchandise, salaries, and other items is recorded.

The cash payments of a business are usually recorded in a separate **cash disbursements journal** (shown in Exhibit 4-22 on page 169). The cash disbursements journal contains Other Accounts (CR), Cash (CR), Purchase Discounts (CR), Accounts Payable (DR), Sales Salaries Expense (DR), General and Administrative Salaries Expense (DR), and Other Accounts (DR) columns. The Purchase Discounts and Accounts Payable columns are used to account for payments for merchandise previously purchased. The Sales and the General and Administrative Salaries Expense columns are used to record the payment of salaries (if a separate payroll journal is not kept). The Other Accounts (DR) column is used to record cash purchases of merchandise and other payments for which there are no special columns. As with the other journals, the parenthetical numbers at the bottoms of the columns mean those column totals have been posted to their respective general ledger accounts.

**exhibit 4-20** Posting from the Purchases Journal




In reading Exhibit 4-22, notice that on February 1 the company made a $588 payment to satisfy the $600 payable to United Company. The 2% discount of $12 was taken because payment was made within 10 days of purchase. The payments to Equipment Supply and Mayberry Marketing were for the full amounts because they were not made within the 10-day discount period (see the purchases journal in Exhibit 4-20).

**exhibit 4-21** The Cash Receipts Journal

**CASH RECEIPTS JOURNAL**

| Cash DR | Sales Discounts DR | Date | Receipt No. | Account Name | Post. Ref. | Accounts Receivable CR | Sales Revenue CR | Other Accounts | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Post. Ref. | Amount CR |
| 588.00 | 12.00 | 2003 Jan. 7 | 621 | Lee Smith | 105.7 | 600.00 | | | |
| 150.00 | | 9 | 622 | Notes Receivable | | | | 103 | 150.00 |
| 125.00 | | 12 | 623 | Cash Sales | | | 125.00 | | |
| 805.56 | 16.44 | 15 | 624 | Carl Hartford | 105.4 | 822.00 | | | |
| 50.00 | | 18 | 625 | Interest Revenue | | | | 513 | 50.00 |
| 30.00 | | 22 | 626 | Cash Sales | | | 30.00 | | |
| 122.50 | 2.50 | 29 | 627 | Roy Avondet | 105.2 | 125.00 | | | |
| 610.00 | | 29 | 628 | Mike Taylor | 105.9 | 610.00 | | | |
| 2,481.06 | 30.94 | | | | | 2,157.00 | 155.00 | | 200.00 |
| (101) | (404) | | | | | (105) | (400) | | (✔) |

**GENERAL LEDGER**

**Cash (101)**

| | | | |
|---|---|---|---|
| 1/31 | 2,481.06 | | |

**Notes Receivable (103)**

| | | | |
|---|---|---|---|
| | | 1/31 | 150.00 |

**Accounts Receivable (105)**

| | | | |
|---|---|---|---|
| | | 1/31 | 2,157.00 |

**Sales Revenue (400)**

| | | | |
|---|---|---|---|
| | | 1/31 | 155.00 |

**Sales Discounts (404)**

| | | | |
|---|---|---|---|
| 1/31 | 30.94 | | |

**Interest Revenue (513)**

| | | | |
|---|---|---|---|
| | | 1/31 | 50.00 |

**ACCOUNTS RECEIVABLE SUBSIDIARY LEDGER**

**Roy Avondet (105.2)**

| | | | |
|---|---|---|---|
| | | 1/29 | 125.00 |

**Carl Hartford (105.4)**

| | | | |
|---|---|---|---|
| | | 1/15 | 822.00 |

**Lee Smith (105.7)**

| | | | |
|---|---|---|---|
| | | 1/7 | 600.00 |

**Mike Taylor (105.9)**

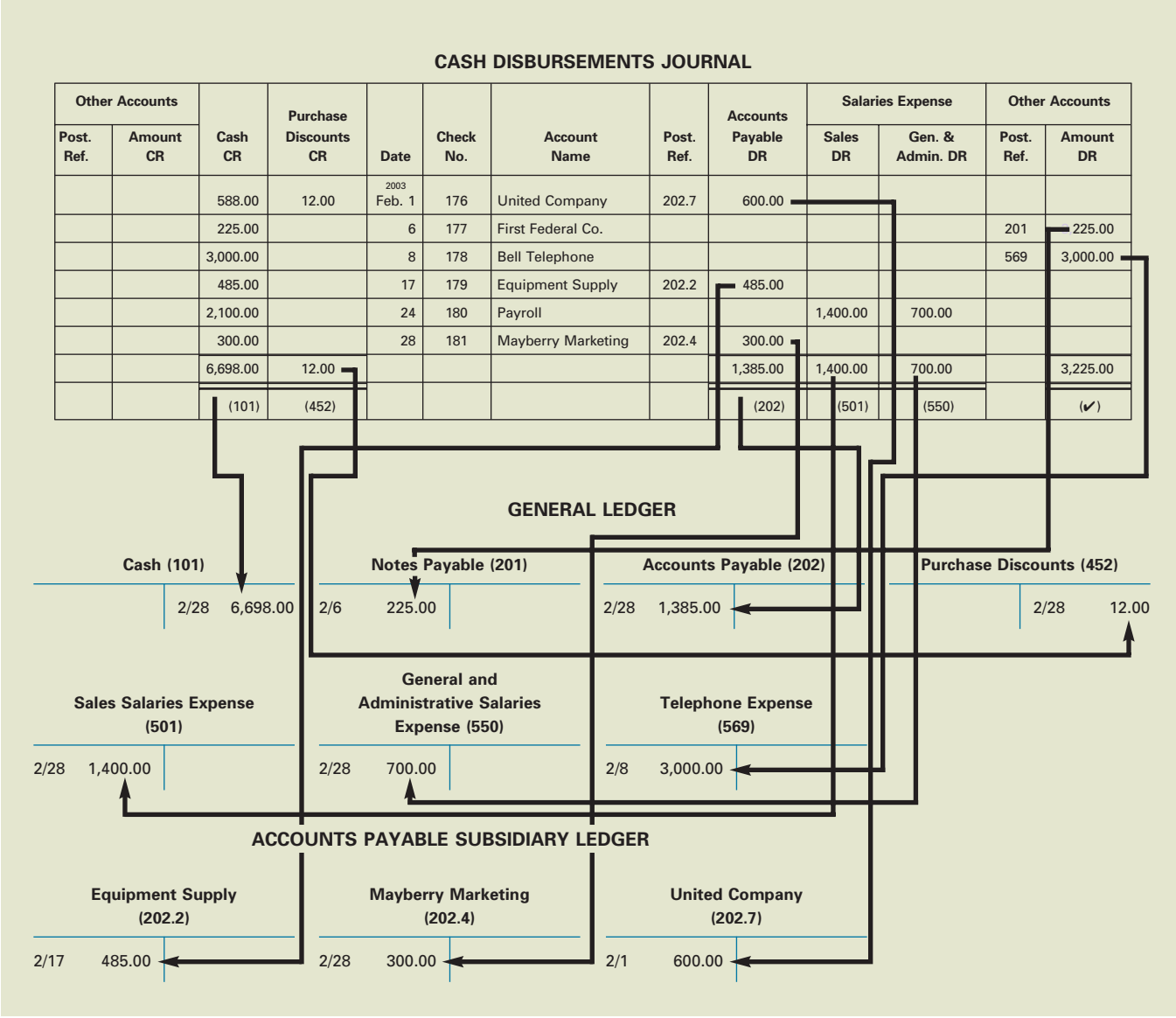
| | | | |
|---|---|---|---|
| | | 1/29 | 610.00 |

## review of learning objectives

**1 Describe how accrual accounting allows for timely reporting and a better measure of a company s economic performance.** Accounting information is needed on a timely basis for decision-making purposes. This requires that the total life of a business be divided into accounting periods, generally a year or less, for which reports are prepared. Some of the data presented in the periodic reports must be tentative because dividing a company s life into relatively short reporting periods requires that allocations and estimates be made.

The necessity for periodic reporting further requires that accrual accounting be used to provide accurate statements of financial position and results of operations for an accounting period. Accrual-basis accounting means that revenues are recognized as they are earned, not necessarily when cash is received; expenses are recognized as they are incurred, not necessarily when cash is paid. Accrual-basis accounting provides a more accurate picture of a company s financial position and operating results than does cash-basis accounting. The cash

**exhibit 4-22** The Cash Disbursements Journal




flow statement is also very important in the financial position analysis.

**2 Explain the need for adjusting entries and make adjusting entries for unrecorded receivables, unrecorded liabilities, prepaid expenses, and unearned revenues.** At the end of an accounting period, there are potentially many important events that have as yet not been recorded. Some important events occur outside the normal accounting process, while other events occur slowly over time. An important part of the accounting process is to review the financial condition and operating activities of the company for the period to make sure that all assets, liabilities, revenues, and expenses have been recorded. These year-end adjustments are called adjusting entries and may be classified under four headings: unrecorded receivables, unrecorded liabilities, prepaid expenses, and unearned revenues. The analysis process involved in making an adjusting entry involves two steps. First, determine whether an asset or liability has been recorded for the proper amount and, if not, correct it (fix the balance sheet). Second, determine what revenue or expense adjustment is needed because of the asset or liability adjustment just made (fix the income statement).

**3 Explain the preparation of the financial statements, the explanatory notes, and the audit report.** After the adjusting entries have been posted to the accounts, an adjusted trial balance is prepared. This adjusted trial balance provides the raw data for the preparation of the balance sheet and the income statement; preparation of the statement of cash flows

requires more detailed information about cash receipts and cash disbursements. The notes to the financial statements provide further information about the methods and assumptions used in preparing the financial statements as well as further detail about certain financial statement items. The audit is conducted by a CPA from outside the company who reviews the adjusting entries, performs tests to check the balances of selected accounts, and reviews the condition of the accounting systems.

**4 Perform a systematic analysis of financial statements.** Financial statements are prepared in order to be used. Two general techniques for financial statement analysis are the DuPont framework and common-size financial statements. The DuPont framework involves the decomposition of return on equity into three components: profitability, efficiency, and leverage. Preparation of common-size financial statements involves dividing all financial statement amounts by total revenue for the period.

**5 Complete the closing process in the accounting cycle.** Once adjusting entries have been journalized and posted to the accounts and the financia l statements have been prepared, the accounting records should be made ready for the next accounting cycle. This is accomplished by journalizing and posting closing entries for all nominal (temporary) accounts. Revenue accounts are closed by being debited; expense accounts and the dividends account are closed by being credited. Revenues, expenses, and dividends are closed to Retained Earnings.

**6 Understand how all the steps in the accounting cycle fit together.** The accounting cycle consists of specific steps to analyze, record, classify, summarize, and report the exchange transactions of economic entities. By way of review, Exhibit 4-12 identifies the steps in the accounting cycle.

expanded material

**7 Make adjusting entries for prepaid expenses and unearned revenues when the original cash amounts are recorded as expenses and revenues.** Prepayments are sometimes initially recorded as expenses instead of as prepaid expenses (assets); cash receipts for revenue in advance are sometimes initially recorded as revenues instead of as unearned revenues (liabilities). However, the concepts governing the adjusting process are the same: use the first part of the adjusting entry to fix the balance sheet and the second part to fix the income statement. The end result (the updated balances reported on the balance sheet and income statement, respectively) is the same regardless of which approach is used, assuming that adjusting entries are made correctly.

## key terms and concepts

accrual-basis accounting 133
adjusting entries 136
asset turnover 148
assets-to-equity ratio 148
calendar year 133
cash-basis accounting 136
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common-size financial statements 149
DuPont framework 148
fiscal year 133
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## review problem

**The Accounting Cycle**

This review problem provides a useful summary of the entire accounting cycle. The following post-closing trial balance is for Sports Haven Company as of December 31, 2002.

**Sports Haven Company**
**Post-Closing Trial Balance**
**December 31, 2002**

| | Debits | Credits |
|---|---|---|
| Cash | $17,500 | |
| Accounts Receivable | 17,000 | |
| Inventory | 28,800 | |
| Supplies on Hand | 1,200 | |
| Prepaid Building Rental | 24,000 | |
| Accounts Payable | | $18,000 |
| Capital Stock (3,600 shares outstanding) | | 54,000 |
| Retained Earnings | | 16,500 |
| Totals | $88,500 | $88,500 |

Following is a summary of the company s transactions for 2003.

a. At the beginning of 2003, the company issued 1,500 new shares of stock at $20 per share.
b. Total inventory purchases were $49,500; all purchases were made on credit and are recorded in the inventory account.
c. Total sales were $125,000; $102,900 were on credit, the rest were for cash. The cost of goods sold was $47,500; the inventory account is reduced at the time of each sale.
d. In December, a customer paid $3,500 cash in advance for merchandise that was temporarily out of stock. The advance payments received from customers are initially recorded as liabilities. The $3,500 is not included in the sales figures in (c) above.
e. The company paid $66,500 on accounts payable during the year.
f. The company collected $102,000 of accounts receivable during the year.
g. The company purchased $600 of supplies for cash during 2003, debiting Supplies on Hand.
h. The company paid $850 for advertising during the year, debiting Prepaid Advertising.
i. Total salaries paid during the year were $45,000.
j. The company paid $650 during the year for utilities.
k. Dividends of $7,500 were paid to stockholders in December.

On December 31, 2003, the company s accountant gathers the following information to adjust the accounts:

l. As of December 31, salaries of $750 had been earned by employees but will not be paid until January 3, 2004.
m. A count at December 31 shows $800 of supplies still on hand.
n. The prepaid advertising paid during 2003 includes $400 paid on December 1, 2003, for a series of radio advertisements to be broadcast throughout December 2003 and January 2004. The balance in the account, $450, represents advertisements that were broadcast during 2003.
o. On December 31, 2002, the company rented an office building for two years and paid $24,000 in cash (the full rental fee for 2003 and 2004). The payment was recorded with a debit to Prepaid Building Rental. No entries have been made for building rent in 2003.
p. On December 20, 2003, a bill for $150 was received for utilities. No entry was made to record the receipt of the bill, which is to be paid on January 4, 2004.
q. As of December 31, 2003, the merchandise paid for in advance [transaction (d)] was still out of stock. The company expects to receive the merchandise and fill the order by January 15, 2004.
r. The company s income is taxed at a rate of 15%.

*Required:*

1. Make entries in the general journal to record each of the transactions [items (a) through (k)].
2. Using T-accounts to represent the general ledger accounts, post the transactions recorded in the general journal. Enter the beginning balances in the accounts that appear in the De-

cember 31, 2002, post-closing trial balance before posting 2003 transactions. When all transactions have been posted to the T-accounts, determine the balance for each account.

3. Prepare a trial balance as of December 31, 2003.
4. Record adjusting entries [items (l) through (r)] in the general journal; post these entries to the general ledger (T-accounts).
5. Prepare an income statement and balance sheet for 2003.
6. Record closing entries [label (s) and (t)] in the general journal; post these entries to the general ledger (T-accounts).
7. Prepare a post-closing trial balance.

**Solution**

1. Following are the journal entries to record the transactions for the year. Several of these are summary entries representing numerous individual transactions.

| | | | |
|---|---|---|---|
| (a) | Cash | 30,000 | |
| | Capital Stock | | 30,000 |

The company issued additional shares of stock, so Capital Stock must be credited to reflect the increase in owners equity. Since the company received cash of $30,000 (1,500 shares at $20 per share), Cash is also increased.

| | | | |
|---|---|---|---|
| (b) | Inventory | 49,500 | |
| | Accounts Payable | | 49,500 |

The company purchased $49,500 of goods on credit. Inventory is increased (debited) for this amount. Accounts Payable is credited to show the increase in liabilities.

| | | | |
|---|---|---|---|
| (c) | Accounts Receivable | 102,900 | |
| | Cash | 22,100 | |
| | Sales Revenue | | 125,000 |

Total sales were $125,000, so Sales Revenue must be increased (credited) by that amount. Of this amount, $102,900 were on credit, and $22,100 were cash sales. We increase the asset accounts, Accounts Receivable and Cash, by debiting them.

| | | | |
|---|---|---|---|
| (c) | Cost of Goods Sold | 47,500 | |
| | Inventory | | 47,500 |

The cost of the merchandise sold during the year was $47,500. Cost of Goods Sold (expense) must be increased (debited) by this amount. Since the goods were sold, Inventory (asset) must be reduced by a credit of $47,500.

| | | | |
|---|---|---|---|
| (d) | Cash | 3,500 | |
| | Unearned Sales Revenue | | 3,500 |

Cash is debited (increased) by the amount received from the customer. The company recorded the advance payments for merchandise by crediting a liability account, Unearned Sales Revenue.

| | | | |
|---|---|---|---|
| (e) | Accounts Payable | 66,500 | |
| | Cash | | 66,500 |

The company s payments on its accounts reduce the amount of its obligation to creditors, so Accounts Payable (liability) is debited to decrease it by the amount paid. Cash must also be decreased (credited).

| | | | |
|---|---|---|---|
| (f) | Cash | 102,000 | |
| | Accounts Receivable | | 102,000 |

Since the company has collected some of its receivables from customers, Accounts Receivable is credited to show a decrease. Cash is increased (debited).

| | | | |
|---|---|---|---|
| (g) | Supplies on Hand | 600 | |
| | Cash | | 600 |

The company purchased $600 of supplies. By debiting Supplies on Hand, an increase is shown in that asset account. Cash must be credited to show a decrease.

| | | | |
|---|---|---|---|
| (h) | Prepaid Advertising | 850 | |
| | Cash | | 850 |

The company purchased $850 of advertising and chose to initially debit an asset account, Prepaid Advertising. Since cash was paid, it must be reduced by a credit.

| | | | |
|---|---|---|---|
| (i) | Salaries Expense | 45,000 | |
| | Cash | | 45,000 |
| (j) | Utilities Expense | 650 | |
| | Cash | | 650 |

For transactions (i) and (j), an expense account must be debited to show that expenses have been incurred. Cash must be credited (reduced).

| | | | |
|---|---|---|---|
| (k) | Dividends | 7,500 | |
| | Cash | | 7,500 |

Dividends must be debited to show a decrease in owners equity resulting from a distribution of earnings. Cash must be reduced by a credit.

2. T-accounts with the beginning balances and journal entries posted are shown here. (Note that accounts with more than one entry must be balanced by drawing a rule and entering the debit or credit balance below it.)

**Cash**

| | | | |
|---|---|---|---|
| Beg. bal. | 17,500 | (e) | 66,500 |
| (a) | 30,000 | (g) | 600 |
| (c) | 22,100 | (h) | 850 |
| (d) | 3,500 | (i) | 45,000 |
| (f) | 102,000 | (j) | 650 |
| | | (k) | 7,500 |
| Updated bal. | 54,000 | | |

**Accounts Receivable**

| | | | |
|---|---|---|---|
| Beg. bal. | 17,000 | (f) | 102,000 |
| (c) | 102,900 | | |
| Updated bal. | 17,900 | | |

**Inventory**

| | | | |
|---|---|---|---|
| Beg. bal. | 28,800 | (c) | 47,500 |
| (b) | 49,500 | | |
| Updated bal. | 30,800 | | |

**Supplies on Hand**

| | | | |
|---|---|---|---|
| Beg. bal. | 1,200 | | |
| (g) | 600 | | |
| Updated bal. | 1,800 | | |

**Prepaid Building Rental**

| | | | |
|---|---|---|---|
| Beg. bal. | 24,000 | | |

**Prepaid Advertising**

| | | | |
|---|---|---|---|
| (h) | 850 | | |

**Accounts Payable**

| | | | |
|---|---|---|---|
| (e) | 66,500 | Beg. bal. | 18,000 |
| | | (b) | 49,500 |
| | | Updated bal. | 1,000 |

**Unearned Sales Revenue**

| | | | |
|---|---|---|---|
| | | (d) | 3,500 |

**Capital Stock**

| | | | |
|---|---|---|---|
| | | Beg. bal. | 54,000 |
| | | (a) | 30,000 |
| | | Updated bal. | 84,000 |

**Retained Earnings**

| | | | |
|---|---|---|---|
| | | Beg. bal. | 16,500 |

**Dividends**

| | | | |
|---|---|---|---|
| (k) | 7,500 | | |

**Sales Revenue**

| | | | |
|---|---|---|---|
| | | (c) | 125,000 |

**Cost of Goods Sold**

| | | | |
|---|---|---|---|
| (c) | 47,500 | | |

**Salaries Expense**

| | | | |
|---|---|---|---|
| (i) | 45,000 | | |

**Utilities Expense**

| | | | |
|---|---|---|---|
| (j) | 650 | | |

3. The balance of each account is entered in a trial balance. Each column in the trial balance is totaled to determine that total debits equal total credits.

**Sports Haven Company**
**Trial Balance**
**December 31, 2003**

| | Debits | Credits |
|---|---|---|
| Cash | $ 54,000 | |
| Accounts Receivable | 17,900 | |
| Inventory | 30,800 | |
| Supplies on Hand | 1,800 | |
| Prepaid Building Rental | 24,000 | |
| Prepaid Advertising | 850 | |
| Accounts Payable | | $ 1,000 |
| Unearned Sales Revenue | | 3,500 |
| Capital Stock | | 84,000 |
| Retained Earnings | | 16,500 |
| Dividends | 7,500 | |
| Sales Revenue | | 125,000 |
| Cost of Goods Sold | 47,500 | |
| Salaries Expense | 45,000 | |
| Utilities Expense | 650 | |
| Totals | $230,000 | $230,000 |

4. The adjusting entries for Sports Haven Company are presented in journal form and explained. Updated T-accounts are provided showing the posting of the adjusting entries.

| | | | |
|---|---|---|---|
| (l) | Salaries Expense | 750 | |
| | Salaries Payable | | 750 |

As of December 31, there is an unrecorded liability and expense of $750 for salaries owed to employees. Because the salaries were earned in 2003, the liability and related expense must be recorded in 2003.

| | | | |
|---|---|---|---|
| (m) | Supplies Expense | 1,000 | |
| | Supplies on Hand | | 1,000 |

Supplies on Hand (asset) has a debit balance before adjustment of $1,800 [beginning balance of $1,200 plus $600 of supplies purchased during the year, transaction (g)]. Since $800 of supplies are on hand at the end of the year, Supplies on Hand should be reduced (credited) by $1,000. Supplies Expense must be debited to show that $1,000 of supplies were used during the period.

| | | | |
|---|---|---|---|
| (n) | Advertising Expense | 650 | |
| | Prepaid Advertising | | 650 |

Prepaid Advertising has a debit balance before adjustment of $850, the total amount paid for advertising during the year [transaction (h)]. This amount includes $400 that was paid for radio advertising throughout December 2003 and January 2004. Only that portion that applies to 2004 should be shown as Prepaid Advertising, $200 ($400 ÷ 2 months), since it is not an expense of the current year. The remainder, $650, is advertising expense for the period. Thus, the asset account, Prepaid Advertising, must be credited for $650, and Advertising Expense must be increased by a debit of $650.

| | | | |
|---|---|---|---|
| (o) | Building Rent Expense | 12,000 | |
| | Prepaid Building Rental | | 12,000 |

The original entry at the end of 2002 was a debit to the asset account, Prepaid Building Rental, and a credit to Cash. An adjusting entry is needed to record rent expense of $12,000 for 2003 ($24,000 ÷ 2 years). The expense account must be debited and the asset account must be reduced by a credit. The remaining $12,000 in Prepaid Building Rental reflects the portion of the total payment for building rent expense in 2004.

| | | | |
|---|---|---|---|
| (p) | Utilities Expense | 150 | |
| | Utilities Payable | | 150 |

As of December 31, 2003, there is an unrecorded liability and expense of $150 for utilities. Because the expense was incurred in 2003, an adjusting entry is needed to record the liability and related expense.

(q) No entry required.

The original entry to record the advance payment from a customer was made by crediting a liability [transaction (d)]. As of December 31, no revenue has been earned. The company still has an obligation to deliver goods or refund the advanced payment. Therefore, no adjustment is required, since the liability is already properly recorded.

| | | | |
|---|---|---|---|
| (r) | Income Tax Expense | 2,595 | |
| | Income Taxes Payable | | 2,595 |

The remaining adjustment is for income taxes. The difference between total revenues and total expenses is the amount of income before taxes, $17,300. This amount is multiplied by the applicable tax rate of 15% to determine income taxes for the period. The expense account is debited to show the income taxes incurred for the year and the liability account is credited to show the obligation to the government.

**Cash**

| | | | |
|---|---|---|---|
| Beg. bal. | 17,500 | (e) | 66,500 |
| (a) | 30,000 | (g) | 600 |
| (c) | 22,100 | (h) | 850 |
| (d) | 3,500 | (i) | 45,000 |
| (f) | 102,000 | (j) | 650 |
| | | (k) | 7,500 |
| Updated bal. | 54,000 | | |

**Accounts Receivable**

| | | | |
|---|---|---|---|
| Beg. bal. | 17,000 | (f) | 102,000 |
| (c) | 102,900 | | |
| Updated bal. | 17,900 | | |

**Inventory**

| | | | |
|---|---|---|---|
| Beg. bal. | 28,800 | (c) | 47,500 |
| (b) | 49,500 | | |
| Updated bal. | 30,800 | | |

**Supplies on Hand**

| | | | |
|---|---|---|---|
| Beg. bal. | 1,200 | (m) | 1,000 |
| (g) | 600 | | |
| Updated bal. | 800 | | |

**Prepaid Building Rental**

| | | | |
|---|---|---|---|
| Beg. bal. | 24,000 | (o) | 12,000 |
| Updated bal. | 12,000 | | |

**Prepaid Advertising**

| | | | |
|---|---|---|---|
| (h) | 850 | (n) | 650 |
| Updated bal. | 200 | | |

**Accounts Payable**

| | | | |
|---|---|---|---|
| (e) | 66,500 | Beg. bal. | 18,000 |
| | | (b) | 49,500 |
| | | Updated bal. | 1,000 |

**Salaries Payable**

| | | | |
|---|---|---|---|
| | | (l) | 750 |

**Utilities Payable**

| | | | |
|---|---|---|---|
| | | (p) | 150 |

| Income Taxes Payable | |
|---|---|
| | (r) 2,595 |

| Unearned Sales Revenue | |
|---|---|
| | (d) 3,500 |

| Capital Stock | |
|---|---|
| | Beg. bal. 54,000 |
| | (a) 30,000 |
| | Updated bal. 84,000 |

| Retained Earnings | |
|---|---|
| | Beg. bal. 16,500 |

| Dividends | |
|---|---|
| (k) 7,500 | |

| Sales Revenue | |
|---|---|
| | (c) 125,000 |

| Cost of Goods Sold | |
|---|---|
| (c) 47,500 | |

| Salaries Expense | |
|---|---|
| (i) 45,000 | |
| (l) 750 | |
| Updated bal. 45,750 | |

| Utilities Expense | |
|---|---|
| (j) 650 | |
| (p) 150 | |
| Updated bal. 800 | |

| Advertising Expense | |
|---|---|
| (n) 650 | |

| Supplies Expense | |
|---|---|
| (m) 1,000 | |

| Building Rent Expense | |
|---|---|
| (o) 12,000 | |

| Income Tax Expense | |
|---|---|
| (r) 2,595 | |

5. Data for the financial statements may be taken from the adjusted ledger accounts and reported as follows:

**Sports Haven Company**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Sales revenue | $125,000 | |
| Less cost of goods sold | 47,500 | |
| Gross profit | | $77,500 |
| Less operating expenses: | | |
| Salaries expense | $ 45,750 | |
| Utilities expense | 800 | |
| Advertising expense | 650 | |
| Supplies expense | 1,000 | |
| Building rent expense | 12,000 | 60,200 |
| Income before income taxes | | $17,300 |
| Income tax expense | | 2,595 |
| Net income | | $14,705 |

Earnings per share:
$14,705 ÷ 5,100 shares = $2.88 (rounded)

**Sports Haven Company**
**Balance Sheet**
**December 31, 2003**

| | | |
|---|---|---|
| **Assets** | | |
| Cash | $54,000 | |
| Accounts receivable | 17,900 | |
| Inventory | 30,800 | |
| Supplies on hand | 800 | |
| Prepaid building rental | 12,000 | |
| Prepaid advertising | 200 | |
| Total assets | | $115,700 |
| **Liabilities and Owners Equity** | | |
| Liabilities: | | |
| Accounts payable | $ 1,000 | |
| Salaries payable | 750 | |
| Utilities payable | 150 | |
| Income taxes payable | 2,595 | |
| Unearned sales revenue | 3,500 | |
| Total liabilities | | $ 7,995 |
| Owners equity: | | |
| Capital stock (5,100 shares outstanding) | $84,000 | |
| Retained earnings | 23,705* | |
| Total owners equity | | 107,705 |
| Total liabilities and owners equity | | $115,700 |

*Note that in preparing the balance sheet, net income must be added to the beginning balance in Retained Earnings and dividends must be subtracted ($16,500 + $14,705 − $7,500 = $23,705).

6. The next step is to record the closing entries in the general journal and then post those entries to the general ledger (T-accounts). T-accounts are shown with all previous entries and the closing entries [items (s) and (t)] posted.

   The first entry is to close the revenue account and each of the expense accounts. Sales Revenue has a credit balance; it is debited to reduce the balance to zero. The expense accounts are closed by crediting them. The difference in total revenues and total expenses is $14,705 (net income for the period). Net income represents an increase in retained earnings. All of this is captured in the single, compound closing entry (s), as follows:

| | | | |
|---|---|---|---|
| (s) | Sales Revenue | 125,000 | |
| | Cost of Goods Sold | | 47,500 |
| | Salaries Expense | | 45,750 |
| | Utilities Expense | | 800 |
| | Advertising Expense | | 650 |
| | Supplies Expense | | 1,000 |
| | Building Rent Expense | | 12,000 |
| | Income Tax Expense | | 2,595 |
| | Retained Earnings | | 14,705 |

Second, Dividends, a nominal account, must also be closed to Retained Earnings.

| | | | |
|---|---|---|---|
| (t) | Retained Earnings | 7,500 | |
| | Dividends | | 7,500 |

**Cash**

| | | | |
|---|---|---|---|
| Beg. bal. | 17,500 | (e) | 66,500 |
| (a) | 30,000 | (g) | 600 |
| (c) | 22,100 | (h) | 850 |
| (d) | 3,500 | (i) | 45,000 |
| (f) | 102,000 | (j) | 650 |
| | | (k) | 7,500 |
| Updated bal. | 54,000 | | |

**Accounts Receivable**

| | | | |
|---|---|---|---|
| Beg. bal. | 17,000 | (f) | 102,000 |
| (c) | 102,900 | | |
| Updated bal. | 17,900 | | |

**Inventory**

| | | | |
|---|---|---|---|
| Beg. bal. | 28,800 | (c) | 47,500 |
| (b) | 49,500 | | |
| Updated bal. | 30,800 | | |

**Supplies on Hand**

| | | | |
|---|---|---|---|
| Beg. bal. | 1,200 | (m) | 1,000 |
| (g) | 600 | | |
| Updated bal. | 800 | | |

**Prepaid Building Rental**

| | | | |
|---|---|---|---|
| Beg. bal. | 24,000 | (o) | 12,000 |
| Updated bal. | 12,000 | | |

**Prepaid Advertising**

| | | | |
|---|---|---|---|
| (h) | 850 | (n) | 650 |
| Updated bal. | 200 | | |

**Accounts Payable**

| | | | |
|---|---|---|---|
| (e) | 66,500 | Beg. bal. | 18,000 |
| | | (b) | 49,500 |
| | | Updated bal. | 1,000 |

**Salaries Payable**

| | | | |
|---|---|---|---|
| | | (l) | 750 |

**Utilities Payable**

| | | | |
|---|---|---|---|
| | | (p) | 150 |

**Income Taxes Payable**

| | | | |
|---|---|---|---|
| | | (r) | 2,595 |

**Unearned Sales Revenue**

| | | | |
|---|---|---|---|
| | | (d) | 3,500 |

**Capital Stock**

| | | | |
|---|---|---|---|
| | | Beg. bal. | 54,000 |
| | | (a) | 30,000 |
| | | Updated bal. | 84,000 |

**Retained Earnings**

| | | | |
|---|---|---|---|
| (t) | 7,500 | Beg. bal. | 16,500 |
| | | (s) | 14,705 |
| | | Updated bal. | 23,705 |

**Dividends**

| | | | |
|---|---|---|---|
| (k) | 7,500 | (t) | 7,500 |

**Sales Revenue**

| | | | |
|---|---|---|---|
| (s) | 125,000 | (c) | 125,000 |

**Cost of Goods Sold**

| | | | |
|---|---|---|---|
| (c) | 47,500 | (s) | 47,500 |

**Salaries Expense**

| | | | |
|---|---|---|---|
| (i) | 45,000 | (s) | 45,750 |
| (l) | 750 | | |

**Utilities Expense**

| | | | |
|---|---|---|---|
| (j) | 650 | (s) | 800 |
| (p) | 150 | | |

**Advertising Expense**

| | | | |
|---|---|---|---|
| (n) | 650 | (s) | 650 |

**Supplies Expense**

| | | | |
|---|---|---|---|
| (m) | 1,000 | (s) | 1,000 |

**Building Rent Expense**

| | | | |
|---|---|---|---|
| (o) | 12,000 | (s) | 12,000 |

**Income Tax Expense**

| | | | |
|---|---|---|---|
| (r) | 2,595 | (s) | 2,595 |

7. The final (optional) step in the accounting cycle is to prepare a post-closing trial balance. This procedure is a check on the accuracy of the closing process. It is a listing of all ledger account balances at year-end. Note that only real accounts appear because all nominal accounts have been closed to a zero balance in preparation for the next accounting cycle.

**Sports Haven Company**
**Post-Closing Trial Balance**
**December 31, 2003**

| | Debits | Credits |
|---|---|---|
| Cash | $ 54,000 | |
| Accounts Receivable | 17,900 | |
| Inventory | 30,800 | |
| Supplies on Hand | 800 | |
| Prepaid Building Rental | 12,000 | |
| Prepaid Advertising | 200 | |
| Accounts Payable | | $ 1,000 |
| Salaries Payable | | 750 |
| Utilities Payable | | 150 |
| Income Taxes Payable | | 2,595 |
| Unearned Sales Revenue | | 3,500 |
| Capital Stock | | 84,000 |
| Retained Earnings | | 23,705 |
| Totals | $115,700 | $115,700 |

## discussion questions

1. Why are financial reports prepared on a periodic basis?
2. Distinguish between reporting on a calendar-year and on a fiscal-year basis.
3. When are revenues generally recognized (recorded)?
4. What is the matching principle?
5. Explain why accrual-basis accounting is more appropriate than cash-basis accounting for most businesses.
6. Why are accrual-based financial statements considered somewhat tentative?
7. Why are adjusting entries necessary?
8. Since there are usually no source documents for adjusting entries, how does the accountant know when to make adjusting entries and for what amounts?
9. The analysis process for preparing adjusting entries involves two basic steps. Identify the two steps and explain why both are necessary.
10. Why are supplies not considered inventory? What type of account is Supplies on Hand?
11. Cash is not one of the accounts increased or decreased in an adjusting entry. Why?
12. Which are prepared first: the year-end financial statements or the general journal adjusting entries? Explain.
13. Of what value are the notes to the financial statements and the audit report, both of which are usually included in the annual report to shareholders?
14. Describe the DuPont framework for analysis of financial statements.
15. What is a common-size financial statement? What are its advantages?
16. What is the most informative section of the common-size balance sheet? Explain.
17. Distinguish between real and nominal accounts.
18. What is the purpose of closing entries?
19. What is the purpose of the post-closing trial balance? Explain where the information for the post-closing trial balance comes from.

### expanded material

20. Explain why there are alternative ways of recording certain transactions, either as assets or expenses, or as liabilities or revenues.

## discussion cases

### CASE 4-1

### USING FINANCIAL STATEMENTS FOR INVESTMENT DECISIONS

Several doctors are considering the purchase of a small real estate business as an investment. Because you have some training in the mechanics of the accounting cycle, they have hired you to review the real estate company s accounting records and to prepare a balance sheet and an income statement for their use. In analyzing various business documents, you verify the following data.

The account balances at the beginning of the current year were as follows:

| | |
|---|---|
| Cash in Bank | $ 7,800 |
| Notes Receivable (from Current Owner) | 10,000 |
| Supplies on Hand | 750 |
| Prepaid Office Rent | 4,500 |
| Accounts Payable | 450 |
| Owners Equity | 22,600 |

During the current year, the following summarized transactions took place:

a. The owner paid $1,200 to the business to cover the interest on the note receivable ($10,000 × 0.12 × 1 year). Nothing was paid on the principal.
b. Real estate commissions earned during the year totaled $45,500. Of this amount, $1,000 has not been received by year-end.
c. The company purchased $500 of supplies during the year. A count at year-end shows $300 worth still on hand.
d. The $4,500 paid for office rental was for 18 months, beginning in January of this year.
e. Utilities paid during the year amounted to $1,500.
f. During the year, $400 of accounts payable were paid; the balance in Accounts Payable at year-end is $300, with the adjustment being debited to Miscellaneous Office Expense.
g. The owner paid himself $1,500 a month as a salary and paid a part-time secretary $2,400 for the year. (Ignore payroll taxes.)

On the basis of the above data, prepare a balance sheet and an income statement for the real estate business. Does the business appear profitable? Does the balance sheet raise any questions or concerns? What other information might the doctors want to consider in making this investment decision?

### CASE 4-2

### ACCOUNTING AND ETHICAL ISSUES INVOLVING THE CLOSING PROCESS

Silva and Wanita Rodriques are the owners of Year-Round Landscape, Inc., a small landscape and yard service business in southern California. The business is three years old and has grown significantly, especially during the past year. To sustain this growth, Year-Round Landscape must expand operations.

In the past, the Rodriques have been able to secure funds for the business from personal resources. Now those resources are exhausted, and the Rodriques are seeking a loan from a local bank.

To satisfy bank requirements, Year-Round Landscape, Inc., must provide a set of financial statements, including comparative income statements showing the growth in earnings over the past three years. In analyzing the records, Silva notices that the nominal accounts have not yet been closed for this year. Furthermore, Silva is aware of a major contract that is to be signed on January 3, only three days after the December 31 year-end for the business. Silva suggests that the closing process be delayed one week so that this major contract can be included in this year s operating results. Silva estimates that this contract will increase current year earnings by 20%.

What accounting issues are involved in this case? What are the ethical issues?

CASE 4-3

## WRESTLING WITH YOUR CONSCIENCE AND GAAP

You are the controller for South Valley Industries. Your assistant has just completed the financial statements for the current year and has given them to you for review. A copy of the statements also has been given to the president of the company. The income statement reports a net income for the year of $50,000 and earnings per share of $2.50.

In reviewing the statements, you realize the assistant neglected to record adjusting entries. After making the necessary adjustments, the company shows a net loss of $10,000. The difference is due to an unusually large amount of unrecorded expenses at year-end. You realize that these expenses are not likely to be found by the independent auditors.

You wonder if it would be better to delay the recording of the expenses until the first part of the subsequent year in order to avoid reporting a net loss on the income statement for the current year. A significant increase in revenues is expected in the coming year, and the expenses in question could be absorbed by the higher revenues.

What issues are involved in this case? What course of action would you take?

CASE 4-4

expanded material

## MAKING SURE OPERATING RESULTS ARE ACCURATE

Dian Karen and Kathy Gillen are considering forming a company to purchase a small business that specializes in interior decoration services. The business records show a modest profit over each of the past five years (approximately $5,000 net income per year). However, the past year s operating results appear to be much better, as shown by the unaudited income statement.

**Fashion Design, Inc.**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Revenues: | | |
| Consulting revenues | $51,000 | |
| Commissions on furnishings sold | 18,000 | |
| Total revenues | | $69,000 |
| Expenses: | | |
| Advertising expense | $ 1,200 | |
| Rent expense | 4,800 | |
| Salaries expense | 36,000 | |
| Supplies expense | 500 | |
| Utilities expense | 1,800 | |
| Other expenses | 1,500 | 45,800 |
| Income before taxes | | $23,200 |
| Income taxes (estimated at 25%) | | 5,800 |
| Net income | | $17,400 |
| EPS: $17,400 ÷ 1,000 shares = $17.40 per share | | |

In an attempt to verify what appears to be unusually high net income for 2003, Karen and Gillen hire a CPA to audit the records. The CPA discovers the following:

a. The company pays salaries on the 1st and 15th of each month. Salaries amounting to $2,500 have been earned by employees by December 31 but will not be paid until January 1. No adjusting entry has been made.
b. Of the $18,000 in commissions received by December 31, 30% will not be earned until completion of a job in mid-February of 2004. All commissions received have been recorded as revenues.
c. A $10,000 payment was received on November 1 for a consulting assignment that is only one-half earned at December 31. The total amount was credited to Consulting Revenues when received.

d. The rent is $400 per month and must be paid in advance on a one-year lease. A check for $4,800 was given to the landlord on March 1, 2003, and recorded as rent expense on that date.

According to the CPA, except for these data, the income statement appears to accurately reflect the operating results of Fashion Design, Inc.

Answer the following questions:

1. Do the 2003 operating results offer encouragement to Karen and Gillen as potential investors? Explain.
2. What adjustments (if any) are required to make the income statement more accurately reflect the results of operations for the year?
3. What is the impact on the balance sheet (if any) of the data discovered by the CPA?

## EXERCISE 4-1

### REPORTING INCOME: CASH VERSUS ACCRUAL ACCOUNTING

On December 31, 2003, Matt Morgan completed the first year of operations for his new computer retail store. The following data were obtained from the company s accounting records:

| | |
|---|---|
| Sales to customers | $197,000 |
| Collections from customers | 145,000 |
| Interest earned and received on savings accounts | 2,500 |
| Cost of goods sold | 98,500 |
| Amounts paid to suppliers for inventory | 103,000 |
| Wages owed to employees at year-end | 3,500 |
| Wages paid to employees | 40,000 |
| Utility bill owed: to be paid next month | 1,100 |
| Interest due at 12/31 on loan to be paid in March of next year | 1,200 |
| Amount paid for one and one-half years rent, beginning Jan. 1, 2003 | 17,500 |
| Income taxes owed at year-end | 4,000 |

1. How much net income (loss) should Matt report for the year ended December 31, 2003, according to (a) cash-basis accounting and (b) accrual-basis accounting?
2. Which basis of accounting provides the better measure of operating results for Matt?

## EXERCISE 4-2

### REPORTING INCOME: CASH VERSUS ACCRUAL ACCOUNTING

On December 31, Brian Silvaggi completed the first year of operations for his new business. The following data are available from the company s accounting records:

| | |
|---|---|
| Sales to customers | $145,000 |
| Collections from customers | 125,000 |
| Interest earned and received on savings accounts | 1,500 |
| Amount paid for one and one-half years rent | 3,600 |
| Utility bill owed: to be paid next month | 960 |
| Cost of goods sold | 80,000 |
| Amount paid to suppliers for materials | 83,000 |
| Wages paid to employees | 47,500 |
| Wages owed to employees at year-end | 1,200 |
| Interest due at 12/31 on a loan to be paid the middle of next year | 800 |

1. How much net income (loss) should Brian report for the year ended December 31 according to (a) cash-basis accounting and (b) accrual-basis accounting?
2. Which basis of accounting provides the better measure of operating results for Brian?

## EXERCISE 4-3 CLASSIFYING ACCOUNT BALANCES

For each of the following accounts, indicate whether it would be found in the income statement or in the balance sheet.

1. Cash
2. Inventory
3. Salaries Expense
4. Prepaid Salaries
5. Retained Earnings
6. Office Supplies Expense
7. Accounts Receivable
8. Cost of Goods Sold
9. Maintenance Expense
10. Interest Receivable
11. Capital Stock
12. Accounts Payable
13. Buildings
14. Mortgage Payable
15. Interest Expense
16. Accounts Payable
17. Notes Receivable
18. Office Supplies
19. Sales Revenue
20. Insurance Expense
21. Machinery
22. Land
23. Salaries Payable
24. Prepaid Insurance
25. Notes Payable
26. Dividends

## EXERCISE 4-4 CLASSIFICATIONS OF ACCOUNTS REQUIRING ADJUSTING ENTRIES

For each type of adjustment listed, indicate whether it is an unrecorded receivable, an unrecorded liability, an unearned revenue, or a prepaid expense at December 31, 2003.

1. Property taxes that are for the year 2003, but are not to be paid until 2004.
2. Rent revenue earned during 2003, but not collected until 2004.
3. Salaries earned by employees in December 2003, but not to be paid until January 5, 2004.
4. A payment received from a customer in December 2003 for services that will not be performed until February 2004.
5. An insurance premium paid on December 29, 2003, for the period January 1, 2004, to December 31, 2004.
6. Gasoline charged on a credit card during December 2003. The bill will not be received until January 15, 2004.
7. Interest on a certificate of deposit held during 2003. The interest will not be received until January 7, 2004.
8. A deposit received on December 15, 2003, for rental of storage space. The rental period is from January 1, 2004, to December 31, 2004.

## EXERCISE 4-5 ADJUSTING ENTRIES: PREPAID EXPENSES AND UNEARNED REVENUES

Boswell Group is a professional corporation providing management consulting services. The company initially debits assets in recording prepaid expenses and credits liabilities in recording unearned revenues. Give the entry that Boswell would use to record each of the following transactions on the date it occurred. Prepare the adjusting entries needed on December 31, 2003.

1. On July 1, 2003, the company paid a three-year premium of $7,200 on an insurance policy that is effective July 1, 2003, and expires June 30, 2006.
2. On February 1, 2003, Boswell paid its property taxes for the year February 1, 2003, to January 31, 2004. The tax bill was $1,800.
3. On May 1, 2003, the company paid $180 for a three-year subscription to an advertising journal. The subscription starts May 1, 2003, and expires April 30, 2006.
4. Boswell received $1,800 on September 15, 2003, in return for which the company agreed to provide consulting services for 18 months beginning immediately.
5. Boswell rented part of its office space to Bristle Brush Company. Bristle paid $1,200 on November 1, 2003, for the next six months rent.

6. Boswell loaned $100,000 to a client. On November 1 the client paid $24,000, which represents two years interest in advance (November 1, 2003, through October 31, 2005).

## EXERCISE 4-6

### ADJUSTING ENTRIES: PREPAID EXPENSES AND UNEARNED REVENUES

Cannon Group provides computer network consulting services. The company initially debits assets in recording prepaid expenses and credits liabilities in recording unearned revenues. Give the appropriate entry that Cannon would use to record each of the following transactions on the date it occurred. Prepare the adjusting entries needed on December 31, 2003. (Round all numbers to the nearest dollar.)

1. On April 1, 2003, the company paid $250 for a two-year subscription to a computer networking journal. The subscription starts April 1, 2003, and expires March 31, 2005.
2. On May 1, 2003, Cannon paid $2,300 in property taxes for the year May 1, 2003, to April 30, 2004.
3. On June 15, 2003, Cannon received $25,000 for a contract to provide consulting services for 18 months beginning immediately.
4. On July 1, 2003, the company paid a two-year premium of $15,000 on an insurance policy that is effective July 1, 2003, and expires June 30, 2005.
5. Cannon rented part of its office building to Ross Graphics, LLC. Ross paid $1,500 on September 1, 2003, for the next six months rent.
6. Cannon loaned $150,000 to a client. On October 1, 2003, the client paid $18,000 for interest in advance (October 1, 2003, to September 30, 2004).

## EXERCISE 4-7

### ADJUSTING ENTRIES

Shop Rite Services is ready to prepare its financial statements for the year ended December 31, 2003. The following information can be determined by analyzing the accounts:

1. On August 1, 2003, Shop Rite received a $4,800 payment in advance for rental of office space. The rental period is for one year beginning on the date payment was received. Shop Rite recorded the receipt as unearned rent.
2. On March 1, 2003, Shop Rite paid its insurance agent $3,000 for the premium due on a 24-month corporate policy. Shop Rite recorded the payment as prepaid insurance.
3. Shop Rite pays its employee wages the middle of each month. The monthly payroll (ignoring payroll taxes) is $22,000.
4. Shop Rite received a note from a customer on June 1, 2003, as payment for services. The amount of the note is $1,000 with interest at 12%. The note and interest will be paid on June 1, 2005.
5. On December 20, 2003, Shop Rite received a $2,500 check for services. The transaction was recorded as unearned revenue. By year-end, Shop Rite had completed three-fourths of the contracted services. The rest of the services won t be completed until at least the middle of January 2004.
6. On September 1, Shop Rite purchased $500 worth of supplies. At December 31, 2003, one-fourth of the supplies had been used. Shop Rite initially recorded the purchase of supplies as an asset.

Where appropriate, prepare adjusting journal entries at December 31, 2003, for each of these items.

## EXERCISE 4-8

### ADJUSTING ENTRIES

Consider the following two independent situations:

1. On June 1, Brown Company received $4,800 cash for a two-year subscription to its monthly magazine. The term of the subscription begins on June 1. Make the entry to record the receipt of the subscription on June 1. Also make the necessary adjusting entry at December 31. The company uses an account called Unearned Subscription Revenue.

2. Clark Company pays its employees every Friday for a five-day workweek. Salaries of $200,000 are earned equally throughout the week. December 31 of the current year is a Tuesday.

   a. Make the adjusting entry at December 31.
   b. Make the entry to pay the week s salaries on Friday, January 3, of the next year. Assume that all employees are paid for New Year s Day.

## EXERCISE 4-9

### ADJUSTING ENTRIES

Consider the following items for Burton Company:

1. On November 1 of the current year, Burton Company borrowed $150,000 at 8% interest. As of December 31, no interest expense has been recognized.
2. On September 1 of the current year, Burton Company rented to another company some excess space in one of its buildings. Burton Company received $18,000 cash on September 1. The rental period extends for six months, starting on September 1. Burton Company credited the account Unearned Rent Revenue upon receipt of the rent paid in advance.
3. At the beginning of the year, Burton Company had $900 of supplies on hand. During the year, another $5,400 of supplies were purchased for cash and recorded in the asset account Office Supplies. At the end of the year, Burton Company determined that $1,400 of supplies remained on hand.
4. On February 1 of the current year, Burton Company loaned Dridge Company $100,000 at 9% interest. The loan amount, plus accrued interest, will be repaid in one year.

For each of the items, make the appropriate adjusting journal entry, if any, necessary in Burton Company s books as of December 31.

## EXERCISE 4-10

### ADJUSTING ENTRIES

Davis Company opened a Web page design business on January 1 of the current year. The following information relates to Davis Company s operations during the current year:

1. On February 1, Davis Company rented a new office. Before moving in, it prepaid a year s rent of $24,000 cash.
2. On March 31, Davis Company borrowed $50,000 from a local bank at 15%. The loan is to be repaid, with interest, after one year. As of December 31, no interest payments had yet been made.
3. Davis Company bills some of its customers in advance for its design services. During the year Davis received $60,000 cash in advance from its customers. As of December 31, Davis s accountant determined that 40% of that amount had not yet been earned.
4. On June 15, Davis Company purchased $1,400 of supplies for cash. On September 14, Davis made another cash purchase of $1,100. As of December 31, Davis s accountant determined that $1,700 of supplies had been used during the year.
5. Before closing its books, Davis Company found a bill for $800 from a free-lance programmer who had done work for the company in November. Davis had not yet recorded anything in its books with respect to this bill. Davis plans to pay the bill in January of next year.

For each of the items, make the initial entry, where appropriate, to record the transaction and, if necessary, the adjusting entry at December 31.

## EXERCISE 4-11

### ANALYSIS OF ACCOUNTS

Answer the following questions:

1. If office supplies on hand amounted to $4,000 at the beginning of the period and total purchases of office supplies during the period amounted to $22,000, determine the ending balance of office supplies on hand if office supplies expense for the period amounted to $20,000.

2. If beginning and ending accounts receivable were $10,000 and $12,000, respectively, and total sales made on account for the period amounted to $52,000, determine the amount of cash collections from customers on account for the period.
3. Assume all rent revenues are received in advance and accounted for as unearned rent, and beginning and ending balances of unearned rent are $3,000 and $2,500, respectively. If total rent revenue for the period amounts to $15,000, determine the amount of rent collections in advance for the period.

## EXERCISE 4-12 DUPONT FRAMEWORK

The following information is for Ina Company:

| | 2003 | 2002 | 2001 |
|---|---|---|---|
| Total assets | $200,000 | $160,000 | $180,000 |
| Total liabilities | 90,000 | 80,000 | 100,000 |
| Stockholders equity | 110,000 | 80,000 | 80,000 |
| Sales | 800,000 | 600,000 | 600,000 |
| Net income | 40,000 | 20,000 | 10,000 |

For the years 2001, 2002, and 2003, compute:

1. Return on equity
2. Profit margin
3. Asset turnover
4. Assets-to-equity ratio

## EXERCISE 4-13 DUPONT FRAMEWORK

The numbers below are for Iffy Company and Model Company for the year 2003:

| | Iffy | Model |
|---|---|---|
| Cash | $ 120 | $ 900 |
| Accounts receivable | 600 | 4,500 |
| Inventory | 480 | 6,000 |
| Property, plant, and equipment | 3,440 | 15,000 |
| Total liabilities | 3,190 | 18,150 |
| Stockholders equity | 1,450 | 8,250 |
| Sales | 10,000 | 75,000 |
| Cost of goods sold | 9,200 | 66,750 |
| Wages expense | 700 | 5,250 |
| Net income | 100 | 3,000 |

1. Compute return on equity, profit margin, asset turnover, and the assets-to-equity ratio for both Iffy and Model.
2. Briefly explain why Iffy s return on equity is lower than Model s.

## EXERCISE 4-14 DUPONT FRAMEWORK

The numbers below are for Question Company and Standard Company for the year 2003:

| | Question | Standard |
|---|---|---|
| Cash | $ 60 | $ 300 |
| Accounts receivable | 600 | 4,000 |
| Inventory | 1,400 | 3,650 |
| Plant and equipment | 1,000 | 8,650 |

*(continued)*

| | Question | Standard |
|---|---|---|
| Total liabilities | $ 2,448 | $13,280 |
| Stockholders equity | 612 | 3,320 |
| Sales | 10,000 | 50,000 |
| Cost of goods sold | 7,350 | 36,750 |
| Wages expense | 700 | 3,500 |
| Other expenses | 1,900 | 8,500 |
| Net income | 50 | 1,250 |

1. Compute return on equity, profit margin, asset turnover, and the assets-to-equity ratio for both Question and Standard.
2. Briefly explain why Question s return on equity is lower than Standard s.

## EXERCISE 4-15 DUPONT FRAMEWORK FOR ANALYZING FINANCIAL STATEMENTS

The income statement and balance sheet for the Rollins Company are provided below. Using the DuPont framework, compute the profit margin, asset turnover, assets-to-equity ratio, and resulting return on equity for the year 2003.

**Rollins Company**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Revenue from services | | $151,920 |
| Operating expenses: | | |
| Insurance expense | $ 5,480 | |
| Rent expense | 500 | |
| Office supplies expense | 2,960 | |
| Salaries expense | 55,000 | 63,940 |
| Net income | | $ 87,980 |

**Rollins Company**
**Balance Sheet**
**December 31, 2003**

| Assets | | Liabilities and Owners Equity | |
|---|---|---|---|
| Cash | $ 22,000 | Accounts payable | $ 54,800 |
| Accounts receivable | 40,000 | Capital stock | 50,000 |
| Notes receivable | 12,800 | Retained earnings | 150,000 |
| Machinery | 180,000 | | |
| Total assets | $254,800 | Total liabilities and owners equity | $254,800 |

## EXERCISE 4-16 DUPONT FRAMEWORK FOR ANALYZING FINANCIAL STATEMENTS

Using the income statement and balance sheet for the Jacobson and Sons Company, compute the three components of return on equity profitability, efficiency, and leverage based on the DuPont framework, for the year 2003.

**Jacobson and Sons Co.**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Revenues | | $265,000 |
| Expenses: | | |
| Supplies expense | $138,600 | |
| Salaries expense | 26,700 | |
| Utilities expense | 6,500 | |
| Rent expense | 17,100 | |
| Other expenses | 8,700 | 197,600 |
| Net income | | $ 67,400 |

**Jacobson and Sons Co.**
**Balance Sheet**
**December 31, 2003**

| Assets | | Liabilities and Owners Equity | |
|---|---|---|---|
| Cash | $ 38,900 | Accounts payable | $ 17,100 |
| Accounts receivable | 31,000 | Notes payable | 17,200 |
| Supplies | 46,300 | Capital stock | 30,000 |
| Land | 25,000 | Retained earnings | 173,600 |
| Buildings | 96,700 | | |
| | | Total liabilities | |
| Total assets | $237,900 | and owners equity | $237,900 |

## EXERCISE 4-17 COMMON-SIZE BALANCE SHEET

The following data are taken from the comparative balance sheet prepared for Elison Company:

| | 2003 | 2002 |
|---|---|---|
| Cash | $ 68,000 | $ 50,000 |
| Accounts receivable | 86,000 | 80,000 |
| Inventory | 136,000 | 60,000 |
| Property, plant, and equipment | 182,000 | 110,000 |
| Total assets | $472,000 | $300,000 |

Sales for 2003 were $2,000,000. Sales for 2002 were $1,600,000.

1. Prepare the asset section of a common-size balance sheet for Elison Company for 2003 and 2002.
2. Overall, Elison is less efficient at using its assets to generate sales in 2003 than in 2002. What asset or assets are responsible for this decreased efficiency?

## EXERCISE 4-18 COMMON-SIZE INCOME STATEMENT

Comparative income statements for Callister Company for 2003 and 2002 are given on the following page.

1. Prepare common-size income statements for Callister Company for 2003 and 2002.
2. The profit margin for Callister is lower in 2003 than in 2002. What expense or expenses are causing this lower profitability?

| | 2003 | 2002 |
|---|---|---|
| Sales | $1,600,000 | $900,000 |
| Cost of goods sold | 1,020,000 | 480,000 |
| Gross profit | $ 580,000 | $420,000 |
| Selling and administrative expenses | 200,000 | 160,000 |
| Operating income | $ 380,000 | $260,000 |
| Interest expense | 80,000 | 60,000 |
| Income before taxes | $ 300,000 | $200,000 |
| Income tax expense | 90,000 | 60,000 |
| Net income | $ 210,000 | $140,000 |

## EXERCISE 4-19

### REAL AND NOMINAL ACCOUNTS

Classify each of the following accounts as either a real account (R) or a nominal account (N):

1. Cash
2. Sales Revenue
3. Accounts Receivable
4. Cost of Goods Sold
5. Prepaid Insurance
6. Capital Stock
7. Retained Earnings
8. Insurance Expense
9. Salaries Payable
10. Interest Expense
11. Insurance Premiums Payable
12. Salaries Expense
13. Accounts Payable
14. Prepaid Salaries
15. Utilities Expense
16. Notes Payable
17. Inventory
18. Property Tax Expense
19. Rent Expense
20. Interest Payable
21. Income Taxes Payable
22. Dividends
23. Buildings
24. Office Supplies
25. Income Tax Expense

## EXERCISE 4-20

### CLOSING ENTRY

The income statement for Eriksen Enterprises for the year ended June 30, 2003, is provided.

**Eriksen Enterprises**
**Income Statement**
**For the Year Ended June 30, 2003**

| | |
|---|---|
| Sales revenue | $187,000 |
| Cost of goods sold | (122,000) |
| Selling and general expenses | (20,500) |
| Income before income taxes | $ 44,500 |
| Income tax expense | (17,800) |
| Net income | $ 26,700 |

1. Prepare a journal entry to close the accounts to Retained Earnings.
2. What problem may arise in closing the accounts if the information from the income statement is used?

## EXERCISE 4-21

### CLOSING ENTRY

Revenue and expense accounts of Rushford Publishing Company for November 30, 2003, are given as follows. Prepare a compound journal entry that will close the revenue and expense accounts to the retained earnings account.

| | Debits | Credits |
|---|---|---|
| Sales Revenue | | $250,500 |
| Cost of Goods Sold | $124,500 | |
| Salaries Expense | 35,000 | |
| Interest Expense | 1,000 | |

*(continued)*

| | Debits | Credits |
|---|---|---|
| Rent Expense | $ 9,300 | |
| Insurance Expense | 1,700 | |
| Property Tax Expense | 800 | |
| Supplies Expense | 1,000 | |
| Advertising Expense | 10,000 | |

## EXERCISE 4-22 CLOSING DIVIDENDS AND PREPARING A POST-CLOSING TRIAL BALANCE

A listing of account balances taken from the adjusted ledger account balances of Farmers Co-Op shows the following:

| | |
|---|---|
| Cash | $ 22,580 |
| Accounts Receivable | 56,480 |
| Inventory | 78,360 |
| Prepaid Insurance | 6,520 |
| Land | 136,000 |
| Accounts Payable | 28,640 |
| Notes Payable | 40,000 |
| Salaries Payable | 9,000 |
| Taxes Payable | 24,400 |
| Unearned Rent | 15,200 |
| Mortgage Payable | 90,000 |
| Capital Stock | 44,000 |
| Dividends | 20,000 |
| Retained Earnings | 68,700 |

All revenue and expense accounts have been closed to Retained Earnings. Dividends has not yet been closed.

Prepare (1) the closing entry for Dividends and (2) a post-closing trial balance for December 31, 2003.

## EXERCISE 4-23 CLOSING DIVIDENDS AND PREPARING A POST-CLOSING TRIAL BALANCE

Below is a listing of account balances taken from the adjusted ledger account balances of Goldsmith Corporation.

| | |
|---|---|
| Cash | $25,500 |
| Accounts Receivable | 24,000 |
| Inventory | 60,000 |
| Prepaid Advertising | 5,500 |
| Building | 95,000 |
| Land | 35,000 |
| Accounts Payable | 20,000 |
| Wages Payable | 5,000 |
| Income Taxes Payable | 4,000 |
| Mortgage Payable | 55,000 |
| Notes Payable | 27,500 |
| Unearned Rent | 2,500 |
| Capital Stock | 95,500 |
| Dividends | 15,500 |
| Retained Earnings | 51,000 |

All revenues and expense accounts have been closed to Retained Earnings. Dividends has not yet been closed.

Prepare (1) the closing entry for Dividends and (2) a post-closing trial balance for December 31, 2003.

## EXERCISE 4-24

expanded material

### ADJUSTING ENTRIES

The trial balance of Dallas Company shows the following balances, among others, on December 31, 2003, the end of its first fiscal year:

| | |
|---|---|
| Rent Revenue | $ 36,800 |
| Office Supplies Expense | 2,700 |
| Mortgage Payable | 130,000 |

Inspection of the company s records reveals that:

1. Rent revenue of $2,800 is unearned at December 31, 2003.
2. Interest of $7,800 on the mortgage is payable semiannually on March 1 and September 1.
3. Office supplies of $500 are on hand on December 31. When purchases of office supplies were made during the year, they were charged to the office supplies expense account.

Given this information, prepare journal entries to adjust the books as of December 31, 2003.

# problems

## PROBLEM 4-1

### CASH- AND ACCRUAL-BASIS ACCOUNTING

In the course of your examination of the books and records of Hickory Company, you find the following data:

| | |
|---|---|
| Salaries earned by employees in 2003 | $ 53,000 |
| Salaries paid in 2003 | 55,000 |
| Total sales revenue in 2003 | 838,000 |
| Cash collected from sales in 2003 | 900,000 |
| Utilities expense incurred in 2003 | 5,000 |
| Utility bills paid in 2003 | 4,800 |
| Cost of goods sold in 2003 | 532,000 |
| Cash paid on purchases in 2003 | 411,000 |
| Inventory at December 31, 2003 | 320,000 |
| Tax assessment for 2003 | 5,000 |
| Taxes paid in 2003 | 4,900 |
| Rent expense for 2003 | 30,000 |
| Rent paid in 2003 | 25,000 |

*Required:*

1. Compute Hickory s net income for 2003 using cash-basis accounting.
2. Compute Hickory s net income for 2003 using accrual-basis accounting.
3. **Interpretive Question:** Why is accrual-basis accounting normally used? Can you see any opportunities for improperly reporting income under cash-basis accounting? Explain.

## PROBLEM 4-2

### ADJUSTING ENTRIES

The information presented below is for Sun Marketing, Inc.

a. Salaries for the period December 26, 2003, through December 31, 2003, amounted to $14,240 and have not been recorded or paid. (Ignore payroll taxes.)
b. Interest of $6,000 is payable for three months on a 15%, $160,000 loan and has not been recorded.
c. Rent of $24,000 was paid for six months in advance on December 1 and debited to Prepaid Rent.
d. Rent of $82,000 was credited to an unearned revenue account when received. Of this amount, $33,400 is still unearned at year-end.
e. The expired portion of an insurance policy is $1,000. Prepaid Insurance was originally debited.

f. Interest revenue of $300 from a $2,000 note has been earned but not collected or recorded.

*Required:* Prepare the adjusting entries that should be made on December 31, 2003. (Omit explanations.)

## PROBLEM 4-3 ADJUSTING ENTRIES

The information presented below is for Averrett Marketing, Inc.

a. Rent of $56,500 was credited to an unearned revenue account when received. Of this amount, $24,750 is still unearned at year-end.
b. Interest revenue of $4,500 from a $65,000 note has been earned but not collected or recorded.
c. Salaries for the period December 26, 2003, to December 31, 2003, amounted to $11,500 and have not been recorded or paid. (Ignore payroll taxes.)
d. Interest of $8,000 is payable for September 2003 through December 2003 on a 12%, $200,000 loan and has not been recorded.
e. The expired portion of an insurance policy is $2,150. Prepaid Insurance was originally debited.
f. Rent of $18,000 was paid for six months in advance on November 15, 2003, and debited to Prepaid Rent.

*Required:* Prepare the adjusting entries that should be made on December 31, 2003. (Omit explanations.)

## PROBLEM 4-4 YEAR-END ANALYSIS OF ACCOUNTS

An analysis of cash records and account balances of Wells, Inc., for 2003 is as follows:

| | Account Balances Jan. 1, 2003 | Account Balances Dec. 31, 2003 | Cash Received or Paid in 2003 |
|---|---|---|---|
| Wages Payable | $2,600 | $3,000 | |
| Unearned Rent | 4,500 | 5,000 | |
| Prepaid Insurance | 100 | 120 | |
| Paid for wages | | | $29,600 |
| Received for rent | | | 12,000 |
| Paid for insurance | | | 720 |

*Required:* Determine the amounts that should be included on the 2003 income statement for (1) wages expense, (2) rent revenue, and (3) insurance expense.

## PROBLEM 4-5 YEAR-END ANALYSIS OF ACCOUNTS

An analysis of cash records and account balances of Computer Networking, Inc., for 2003 is as follows:

| | Account Balances Jan. 1, 2003 | Account Balances Dec. 31, 2003 | Cash Received or Paid in 2003 |
|---|---|---|---|
| Salaries Payable | $10,750 | $12,750 | |
| Unearned Rent | 23,250 | 26,500 | |
| Prepaid Insurance | 2,000 | 3,100 | |
| Paid for salaries | | | $125,000 |
| Received for rent | | | 64,250 |
| Paid for insurance | | | 12,600 |

*Required:* Determine the amounts that should be included on the 2003 income statement for (1) salaries expense, (2) rent revenue, and (3) insurance expense.

## PROBLEM 4-6 ACCOUNT CLASSIFICATIONS AND DEBIT-CREDIT RELATIONSHIPS

Using the format provided, for each account identify (1) whether the account is a balance sheet (B/S) or an income statement (I/S) account; (2) whether it is an asset (A), a liability (L), an owners equity (OE), a revenue (R), or an expense (E) account; (3) whether the account is a real or a nominal account; (4) whether the account will be closed or left open at year-end; and (5) whether the account normally has a debit or a credit balance. The following example is provided:

| Account Title | (1) B/S or I/S | (2) A, L, OE, R, E | (3) Real or Nominal | (4) Closed or Open | (5) Debit/ Credit |
|---|---|---|---|---|---|
| Cash | B/S | A | Real | Open | Debit |

1. Accounts Receivable
2. Accounts Payable
3. Prepaid Insurance
4. Mortgage Payable
5. Rent Expense
6. Sales Revenue
7. Cost of Goods Sold
8. Dividends
9. Capital Stock
10. Inventory
11. Retained Earnings
12. Prepaid Rent
13. Supplies on Hand
14. Utilities Expense
15. Income Taxes Payable
16. Interest Revenue
17. Notes Payable
18. Income Tax Expense
19. Wages Payable
20. Unearned Rent Revenue
21. Land
22. Unearned Consulting Fees
23. Interest Receivable
24. Consulting Fees

## PROBLEM 4-7 ANALYZING FINANCIAL STATEMENTS

Refer to the financial statements for Sports Haven Company for the year-ended December 31, 2003 (shown in the review problem for this chapter, pp. 176 177).

*Required:*

1. Using the DuPont framework, compute:
   a. The profit margin
   b. The asset turnover
   c. The assets-to-equity ratio
   d. The overall return on equity
2. Prepare a common-size income statement.
3. **Interpretive Question:** What is the value of common-size financial statements?

## PROBLEM 4-8 ANALYZING FINANCIAL STATEMENTS

The income statement and the balance sheet for the Hamblin Company for the year ended December 31, 2003, are provided below.

**Hamblin Company**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Sales revenue | | $270,000 |
| Expenses: | | |
| Cost of goods sold | $150,000 | |
| Salaries expense | 45,000 | |
| Interest expense | 10,500 | 205,500 |
| Net income | | $ 64,500 |

**Hamblin Company**
**Balance Sheet**
**December 31, 2003**

| | | |
|---|---|---|
| **Assets** | | |
| Cash | $ 49,500 | |
| Accounts receivable | 22,500 | |
| Inventory | 15,000 | |
| Land | 225,000 | |
| Total assets | | $312,000 |
| **Liabilities and Owners Equity** | | |
| Liabilities: | | |
| Accounts payable | | $ 15,000 |
| Owners equity: | | |
| Capital stock | $202,500 | |
| Retained earnings | 94,500 | |
| Total owners equity | | 297,000 |
| Total liabilities and owners equity | | $312,000 |

*Required:*

1. Using the DuPont framework, compute Hamblin s return on equity (ROE).
2. Prepare a common-size balance sheet, using total revenue as the basis for comparison.
3. **Interpretive Question:** Based on your analysis in (1) and (2), does Hamblin Company appear to be in good shape?

## PROBLEM 4-9

### CLOSING ENTRIES

The income statement for Home Light, Inc., for the year ended December 31, 2003, is as follows:

**Home Light, Inc.**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Sales revenue | | $452,000 |
| Less expenses: | | |
| Cost of goods sold | $363,000 | |
| Salaries expense | 72,000 | |
| Interest expense | 5,250 | |
| Office supplies expense | 3,820 | |
| Insurance expense | 4,930 | |
| Property tax expense | 11,200 | |
| Total expenses | | 460,200 |
| Net loss | | $ (8,200) |

*Required:*

Dividends of $20,000 were paid on December 30, 2003.

1. Give the entry required on December 31, 2003, to properly close the income statement accounts.
2. Give the entry required to close the dividends account at December 31, 2003.

## PROBLEM 4-10

### CLOSING ENTRIES

The income statement for Quality Plumbing, Inc., for the year ended December 31, 2003, is as follows:

| Quality Plumbing, Inc.<br>Income Statement<br>For the Year Ended December 31, 2003 | | |
|---|---|---|
| Sales revenue | | $623,400 |
| Less expenses: | | |
| Cost of goods sold | $447,000 | |
| Wages expense | 98,350 | |
| Utilities expense | 1,720 | |
| Insurance expense | 2,790 | |
| Property tax expense | 2,110 | |
| Rent expense | 26,000 | |
| Advertising expense | 9,830 | |
| Interest expense | 4,300 | |
| Total expenses | | 592,100 |
| Net income | | $ 31,300 |

Dividends of $23,200 were paid on December 30, 2003.

*Required:*

1. Give the entry required on December 31, 2003, to properly close the income statement accounts.
2. Give the entry required to close the dividends account at December 31, 2003.

## PROBLEM 4-11

## UNIFYING CONCEPTS: ADJUSTING AND CLOSING ENTRIES

The unadjusted and adjusted trial balances of White Company as of December 31, 2003, are presented below.

| White Company<br>Trial Balance<br>December 31, 2003 | Unadjusted | | Adjusted | |
|---|---|---|---|---|
| | Debits | Credits | Debits | Credits |
| Cash | $ 21,250 | | $ 21,250 | |
| Accounts Receivable | 11,250 | | 11,250 | |
| Supplies on Hand | 5,195 | | 3,895 | |
| Prepaid Rent | 17,545 | | 7,545 | |
| Prepaid Insurance | 1,985 | | 1,100 | |
| Buildings (net) | 95,000 | | 95,000 | |
| Land | 45,720 | | 45,720 | |
| Accounts Payable | | $ 9,350 | | $ 9,350 |
| Wages Payable | | | | 5,700 |
| Income Taxes Payable | | | | 580 |
| Interest Payable | | 450 | | 1,050 |
| Notes Payable | | 65,000 | | 65,000 |
| Capital Stock | | 84,320 | | 84,320 |
| Consulting Fees Earned | | 142,380 | | 142,380 |
| Wages Expense | 92,335 | | 98,035 | |
| Rent Expense | | | 10,000 | |
| Interest Expense | 3,500 | | 4,100 | |
| Insurance Expense | 585 | | 1,470 | |
| Supplies Expenses | 4,365 | | 5,665 | |
| Income Tax Expense | 2,770 | | 3,350 | |
| Totals | $301,500 | $301,500 | $308,380 | $308,380 |

*Required:*

1. Prepare the journal entries that are required to adjust the accounts at December 31, 2003.
2. Prepare the journal entry that is required to close the accounts at December 31, 2003.

## PROBLEM 4-12 UNIFYING CONCEPTS: ANALYSIS OF ACCOUNTS

The bookkeeper for Careless Company accidentally pressed the wrong computer key and erased the amount of Retained Earnings. You have been asked to analyze the following data and provide some key numbers for the board of directors meeting, which is to take place in 30 minutes. With the exception of Retained Earnings, the following account balances are available at December 31, 2003.

| | | | |
|---|---|---|---|
| Cash | $122,000 | Accounts Receivable | $ 98,000 |
| Furniture (net) | 80,000 | Inventory | 320,000 |
| Accounts Payable | 240,000 | Notes Payable | 500,000 |
| Land | 520,000 | Supplies on Hand | 20,000 |
| Buildings (net) | 480,000 | Capital Stock | 600,000 |
| Sales Revenue | 830,000 | Dividends | 40,000 |
| Salaries Expense | 100,000 | Retained Earnings | ? |
| Cost of Goods Sold | 440,000 | | |

*Required:*

1. Compute the amount of total assets at December 31, 2003.
2. Compute the amount of net income for the year ended December 31, 2003.
3. After all closing entries are made, what is the amount of Retained Earnings at December 31, 2003?
4. What was the beginning Retained Earnings balance at January 1, 2003?

## PROBLEM 4-13 UNIFYING CONCEPTS: ANALYSIS AND CORRECTION OF ERRORS

At the end of November 2003, the general ledger of Porridge Milling Company showed the following amounts:

| | |
|---|---|
| Assets | $64,250 |
| Liabilities | 28,800 |
| Owners Equity | 62,000 |

The company s bookkeeper is new on the job and does not have much accounting experience. Because the bookkeeper has made numerous errors, total assets do not equal liabilities plus owners equity. The following is a list of errors made.

a. Inventory that cost $42,000 was sold, but the entry to record cost of goods sold was not made.
b. Credit sales of $12,100 were posted to the general ledger as $21,100. The accounts receivable were posted correctly.
c. Inventory of $12,500 was purchased on account and received before the end of November, but no entry to record the purchase was made until December.
d. November salaries payable of $5,000 were not recorded until paid in December.
e. Common stock was issued for $18,500 and credited to Accounts Payable.
f. Inventory purchased for $31,050 was incorrectly posted to the asset account as $13,500. No error was made in the liability account.

*Required:* Determine the correct balances of assets, liabilities, and owners equity at the end of November.

## PROBLEM 4-14 UNIFYING CONCEPTS: THE ACCOUNTING CYCLE

The post-closing trial balance of Anderson Company at December 31, 2002, is shown here.

**Anderson Company**
**Post-Closing Trial Balance**
**December 31, 2002**

| | Debits | Credits |
|---|---|---|
| Cash | $ 15,000 | |
| Accounts Receivable | 20,000 | |
| Inventory | 30,000 | |
| Land | 150,000 | |
| Accounts Payable | | $ 25,000 |
| Notes Payable | | 35,000 |
| Capital Stock | | 125,000 |
| Retained Earnings | | 30,000 |
| Totals | $215,000 | $215,000 |

During 2003, Anderson Company had the following transactions:

a. Inventory purchases were $80,000, all on credit (debit Inventory).
b. An additional $10,000 of capital stock was issued for cash.
c. Merchandise that cost $100,000 was sold for $180,000; $100,000 were credit sales and the balance were cash sales. (Debit Cost of Goods Sold and credit Inventory for sale of merchandise.)
d. The notes were paid, including $7,000 interest.
e. $105,000 was collected from customers.
f. $95,000 was paid to reduce accounts payable.
g. Salaries expense was $30,000, all paid in cash.
h. A $10,000 cash dividend was declared and paid.

*Required:*

1. Prepare journal entries to record each of the 2003 transactions.
2. Set up T-accounts with the proper balances at January 1, 2003, and post the journal entries to the T-accounts.
3. Prepare an income statement for the year ended December 31, 2003, and a balance sheet as of that date. Also prepare a statement of retained earnings.
4. Prepare the entries necessary to close the nominal accounts, including Dividends.
5. Post the closing entries to the ledger accounts [label (i) and (j)] and prepare a post-closing trial balance at December 31, 2003.

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication*

*skills, experience with electronic research, and teamwork through group and business activities.*

## ANALYZING REAL COMPANY INFORMATION

***Analyzing 4-1 (Microsoft)***

Using **MICROSOFT** s 1999 annual report contained in Appendix A, answer the following questions:

1. Microsoft discloses that as of June 30, 1999, the company had received cash of $4.239 billion that had not been earned as of that date. Accordingly, the company made an adjusting entry to recognize the unearned revenue. Provide the adjusting entry that was made by Microsoft.
2. Read the note related to Microsoft s unearned revenue and determine what this amount relates to operating systems, applications, and so forth.
3. Using the DuPont framework, determine Microsoft s return on equity.

***Analyzing 4-2 (Hewlett-Packard and Compaq)***

Selected financial statement information for **HEWLETT-PACKARD** and **COMPAQ** is given in the table below. Using this information, answer the following questions.

| (in millions) | Hewlett-Packard | Compaq |
|---|---|---|
| Assets | $35,297 | $27,277 |
| Equity | 18,295 | 14,834 |
| Net income | 3,491 | 569 |
| Sales | 42,370 | 38,525 |

1. Compute each firm s return on equity using the DuPont framework.
2. Identify the primary reason for the significant difference between the two return on equity ratios.
3. Based on the ratios used in the DuPont framework, can you determine which firm has more debt? Which ratio provided this insight?

***Analyzing 4-3 (Campbell Soup)***

Information from the 1999 income statement for **CAMPBELL SOUP COMPANY** is shown below.

| (in millions) | 1999 52 weeks | 1998 52 weeks | 1997 52 weeks |
|---|---|---|---|
| **Net Sales** | **$6,424** | $6,696 | $6,614 |
| Costs and expenses | | | |
| Cost of products sold | **3,050** | 3,233 | 3,412 |
| Marketing and selling expenses | **1,634** | 1,518 | 1,370 |
| Administrative expenses | **304** | 300 | 271 |
| Research and development expenses | **66** | 71 | 68 |
| Other expenses (Note 7) | **64** | 64 | 140 |
| Restructuring charges (Note 6) | **36** | 262 | 204 |
| Total costs and expenses | **5,154** | 5,448 | 5,465 |

*( continued)*

| | | | |
|---|---|---|---|
| **Earnings Before Interest and Taxes** | **$1,270** | $1,248 | $1,149 |
| Interest expense (Note 8) | **184** | 189 | 166 |
| Interest income | **11** | 14 | 8 |
| *Earnings before taxes* | **1,097** | 1,073 | 991 |
| Taxes on earnings (Note 11) | **373** | 384 | 357 |
| **Earnings from Continuing Operations** | **724** | 689 | 634 |
| **Earnings (Loss) from Discontinued Operations (Note 3)** | | (18) | 79 |
| **Cumulative Effect of Change in Accounting Principle (Note 4)** | | (11) | |
| **Net Earnings** | **$ 724** | $ 660 | $ 713 |

Using the information from the income statement, perform the following:

1. Prepare common-size income statements for 1999 and 1998. Can you identify any significant changes in expenses and revenues as a percentage of total revenue over the two-year period?
2. Using the information from the 1999 income statement, prepare the journal entry that would be required to close the nominal accounts to Retained Earnings.

## INTERNATIONAL CASE

### *Exchange Rate Adjustments*

Given the international economy in which many firms operate, it is not unusual for companies to have transactions with companies in foreign countries. Relatedly, it is becoming common for some of those transactions to be denominated in a foreign currency. That is, if a company in the United States makes a purchase from a company in Japan, it is possible that the U.S. company will have to pay Japanese yen when the invoice comes due.

For example, suppose American, Inc., purchased inventory from Japan, Inc., on December 15, 2002. Japan, Inc., expects to receive 1,000,000 Japanese yen in 30 days. To record a journal entry for this purchase, you would need to know what 1,000,000 yen are worth today. Suppose that on December 15, 2002, one yen is worth $0.07 (this is called an exchange rate). What journal entry would be made on American, Inc. s books?

Since exchange rates change every day, the amount of U.S. dollars to be paid on January 15, 2003, will likely be different than the originally recorded $70,000. In addition, to correctly state the liability on December 31, 2002, an adjustment will be required. Suppose that at year-end, one Japanese yen is worth $0.08. What adjusting entry would be made to reflect this change in exchange rates as of December 31, 2002? (HINT: The accounts being adjusted with this journal entry will be the accounts payable account and an exchange gain or loss.)

When the invoice is paid on January 15, 2003, it is likely that the number of U.S. dollars required to purchase 1,000,000 Japanese yen will again have changed. Suppose exchange rates have increased to $0.09. Provide the journal entry to pay the invoice.

## ETHICS CASE

### *Do Two Wrongs Make a Right?*

Jex Varner, chief financial officer of Wyndam, Inc., is involved in a meeting with the firm s newly hired external auditors, Ernst & Price. The external auditors have noted several adjusting entries that they believe should be reflected in the current period s financial statements. Specifically, there are questions

regarding $400,000 of cash that has been received (and recorded as revenue) but not yet earned. The auditors feel that this amount should be recognized as a liability.

Jex counters that the firm s policy has always been to recognize revenue when the cash is received. He states that $350,000 of cash was received in December of last year, earned in January, and no adjustment was made. To be consistent, he continues, he doesn t believe any adjustments should be made this year.

As a member of the external auditing team, do you agree with Jex s reasoning? If you think that an adjustment needs to be made, what journal entry would you propose? What should be done about the $350,000 that has been earned this year even though the cash was received last year?

## WRITING ASSIGNMENT

***Are Adjusting Entries More Trouble Than They Are Worth?***

You are taking an introductory accounting class. You think that making regular journal entries is not too difficult, but making adjusting entries is still a bit of a mystery. You have found that your answers to homework questions on adjusting entries are incorrect at least half the time. You mentioned your difficulties to the other members of your study group, and they all agreed adjusting entries are brutal. As you and your study colleagues shared your frustration with adjusting entries, the following consensus formed: adjusting entries are more trouble than they are worth. You were selected by your study group to pass this sentiment along to your accounting instructor. She agreed that adjusting entries can be difficult, but she insisted that they are worth the effort. She has now given you the following writing assignment: write a one-page paper describing the value of adjusting entries.

## THE DEBATE

***Standardizing Ratios***

Up to this point in the text, you have been introduced to numerous ratios current ratio, profit margin, return on equity, and so forth. The DuPont framework introduced in this chapter provides a meaningful way of using ratios to compare a company s performance both across time and across companies. Using ratios for comparison purposes could be facilitated by standardizing certain ratios and requiring all companies to compute a specified set of ratios in exactly the same way. For example, when computing a debt-to-equity ratio, should debt include all liabilities or only long-term liabilities? Having a specified definition of what should be included in the debt number and what should be included in the equity number might facilitate comparison.

Divide your group into two teams and defend the following positions:

Team 1 represents Standardize the Ratios. The FASB (or some other group) should establish standards for computing ratios. All firms would be required to compute certain ratios and include them with other financial statement information. In addition, definitions should be provided that specify what account balances are to be included in the numerator and denominator of each ratio.

Team 2 represents Freedom of Ratios. Ratios should be neither defined nor required by standard setters. Different financial statement users use the information for different purposes and in different ways. Requiring ratios for all companies may result in inappropriate comparisons being made.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignments given in earlier chapters. If you completed those spreadsheets, you have a head start on this one.

1. Refer back to the balance sheet and income statement created using the financial statement numbers for Handyman Company for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2]. With these historical numbers for 2003 as a starting point, Handyman wishes to prepare a forecasted balance sheet and a forecasted income statement for 2004. In preparing the forecasted financial statements for 2004, consider the following additional information:
   a. Sales in 2004 are expected to increase by 40% over 2003 sales of $700.
   b. In the forecasted balance sheet for 2004, cash, receivables, inventory, and accounts payable will all increase at the same rate as sales (40%) relative to 2003. These increases occur because, with the planned 40% increase in the volume of business and no plans to significantly change its methods of operation, Handyman will probably also experience a 40% increase in the levels of its current operating assets and liabilities.
   c. In 2004, Handyman expects to acquire new property, plant, and equipment costing $80.
   d. Accumulated depreciation is the cumulative amount of depreciation expense that Handyman has reported over its years in business. Thus, the forecasted amount of accumulated depreciation for 2004 can be computed as accumulated depreciation as of the end of 2003 plus the forecasted depreciation expense for 2004.
   e. New short-term loans payable will be acquired in an amount sufficient to make Handyman s current ratio (current assets divided by current liabilities) in 2004 exactly equal to 2.0.
   f. No new long-term debt will be acquired in 2004.
   g. No cash dividends will be paid in 2004. Remember that the amount of retained earnings at the end of any year is the beginning retained earnings amount plus net income minus dividends.
   h. In this exercise, the forecasted amount of paid-in capital is the plug figure. In other words, the forecasted balance in paid-in capital at the end of 2004 is the amount necessary to make the forecasted balance sheet balance such that forecasted total assets equal forecasted total liabilities. A key reason for preparing forecasted financial statements is to identify in advance whether any additional financing will be required.
   i. The $160 in operating expenses reported in 2003 breaks down as follows: $5 depreciation expense, $155 other operating expenses.
   j. In the forecasted income statement for 2004, cost of goods sold and other operating expenses will both increase at the same rate as sales (40%) relative to 2003. This is another way of saying that the amount of these expenses, relative to the amount of sales, will probably stay about the same year to year unless Handyman plans to significantly change the way it does business.
   k. The amount of Handyman s depreciation expense is determined by how much property, plant, and equipment the company has. In 2003, Handyman had $5 of depreciation expense on $199 of property, plant, and equipment, meaning that depreciation was equal to 2.5% ($5/$199) of the amount of property, plant, and equipment. It is expected that the same relationship will hold in 2004.

l. Interest expense depends on how much interest-bearing debt a company has. In 2003, Handyman reported interest expense of $9 on long-term debt of $207. [Note: To simplify this exercise, we will ignore interest expense on the short-term loan payable.] Because Handyman is expected to have the same amount of long-term debt in 2004, our best guess is that interest expense will remain the same.

m. Income tax expense is determined by how much pretax income a company has. And, the most reasonable assumption to make is that a company s tax rate, equal to income tax expense divided by pretax income, will stay constant from year to year. Handyman s income tax rate in 2003 was 33% ($4/$12).

2. Repeat (1) assuming that forecasted sales growth in 2004 is 20% instead of 40%. Clearly state any assumptions that you make.

## INTERNET SEARCH

***General Motors***

We began this chapter with an introduction to **GENERAL MOTORS**; we will end this chapter with a look at its Web site. Access GM s Web site at **http://www.gm.com**. Sometimes Web addresses change, so if this address doesn t work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link to GM.

Once you have located the company s Web site, answer the following questions:

1. Locate GM s financial statements. Write down the path you took to get to the statements. In your opinion, is GM s Web site easy to navigate relative to others you have accessed?
2. In the chapter, we computed GM s return on equity for 1999. Using the information contained in GM s most recent annual report, compute the company s return on equity using the DuPont framework. Provide these computations for the two most recent periods. Using the DuPont framework, identify the ratio(s) that highlight the reasons for any changes in return on equity over the two-year period and compare the results with those obtained from 1999.
3. Access the company s note information relating to accounting estimates. Since these estimates result in most adjusting entries, identify who makes these estimates and, as a result, who is responsible for making the adjusting entries.
4. As pointed out in the chapter, revenue is recognized when it is earned and a promise of payment has been received. Using the note relating to revenue recognition, identify when GM recognizes revenue for its various segments within the firm.

# Ensuring the Integrity of Financial Information

chapter

5

## learning objectives

After studying this chapter, you should be able to:

1. Identify the types of problems that can appear in financial statements.
2. Describe the safeguards employed within a firm to ensure that financial statements are free from problems.
3. Understand the need for monitoring by independent parties.
4. Describe the role of auditors and how their presence affects the integrity of financial statements.
5. Explain the role of the Securities and Exchange Commission in adding credibility to financial statements.

**PHAR-MOR**,[1] a dry goods retailer based in Youngstown, Ohio, was founded in 1982 by Mickey Monus. Within 10 years, Phar-Mor, with over 300 stores, was operating in nearly every state in the United States. Phar-Mor s strategy was to sell household products and prescription drugs at prices lower than those of other discount stores. Phar-Mor s prices were so low and its expansion was conducted so quickly that even **WAL-MART**, the king of discount prices, was nervous. Sam Walton once said that the only company he feared at all in the expansion of Wal-Mart was Phar-Mor.[2]

Today, with fewer than 140 stores, Phar-Mor is struggling to build a profitable business from the rubble of a financial statement fraud that exceeded $1 billion. Apparently, certain Phar-Mor executives used financial statements showing healthy profits to obtain more than $1 billion in credit and capital for the company. Investors in Phar-Mor included **SEARS, ROEBUCK & CO.**, **WESTINGHOUSE ELECTRIC CORPORATION**, and mall developer Edward DeBartolo Sr. (the former owner of the San Francisco 49ers).

Phar-Mor s financial statements appeared to present an extremely profitable company. In reality, the company never made a legitimate profit. Phar-Mor actually had $238 million in pretax losses in 1992 alone. Schemers at the company kept two sets of accounting records: an official ledger that they sometimes manipulated with false entries, called raisins, and another, nicknamed the cookies, where they kept track of the false entries. They would refer to their fraud as putting raisins in the cookies.

For six years, some company officials seemingly used the company as their personal plaything, falsifying financial ledgers and allegedly raiding company coffers. Officers diverted more than $10 million from Phar-Mor to prop up the **WORLD BASKETBALL LEAGUE** (the defunct minor-league basketball venture) and stole more than $500,000 for personal use. How could a company appear in its financial statements to be so profitable and yet in reality be losing money? How could a company with a reputation as good as Phar-Mor s deceive the public by misrepresenting its profitability, and what was the price of this deception?

Phar-Mor emerged from bankruptcy in September 1995 with 102 stores. In July 1999, the company had 139 stores in 24 states and reported a profit from its operations of $15 million. However, the debt incurred by the company to finance its recovery wiped out all that profit. For the fiscal year ended July 3, 1999, Phar-Mor reported a net loss of $1.6 million.

## setting the stage

*In Chapters 1 and 2, you were introduced to financial accounting and shown the outputs (financial statements) of the financial reporting process. You learned that the balance sheet, income statement, and statement of cash flows are reports used by organizations to summarize their financial results for various users. In Chapters 3 and 4, the accounting cycle, the method of entering and processing financial transaction information in the accounting records, was described. You learned that transaction data are captured by journal entries, journal entry data are summarized in accounts and ledgers, ledger information is summarized on trial balances, and trial balance information provides the basis for the balance sheet, income statement, and statement of cash flows.*

*In Chapters 1 through 4, the assumption was made that the financial reporting process always works the way it should and that the resulting financial statements are accurate. In reality, however, because of unintentional errors, as well as intentional deception or fraud (such as in the Phar-Mor case), the resulting financial statements sometimes contain errors or omissions that can mislead investors, creditors, and other users.*

*In this chapter, we show how financial statements might be manipulated, and we discuss the safeguards built into the financial reporting system to prevent these abuses. We also examine the role that auditors play in ensuring that the financial statements fairly represent the financial performance of the firm.*

1 Most of these facts relating to Phar-Mor appeared in Gabriella Stern, Chicanery at Phar-Mor Ran Deep, Close Look at Discounter Shows, *The Wall Street Journal*, January 20, 1994, p. 1.
2 Mark F. Murray, When a Client Is a Liability, *Journal of Accountancy*, September 1992, pp. 54 58.

1

Identify the types of problems that can appear in financial statements.

## THE TYPES OF PROBLEMS THAT CAN OCCUR

Obviously, most businesses do not engage in the massive frauds that occurred at **PHAR-MOR**. Financial deception does not come about mainly for two reasons: (1) the vast majority of business managers are honest, possess integrity, and would not be associated with fraudulent activity, and (2) safeguards have been built into the accounting system to prevent and detect activities that are inconsistent with the objectives of a business. These safeguards attempt to eliminate problems from being introduced into the financial statements.

Before proceeding further, we need to make an important distinction regarding these problems. Problems in the financial statements can result for several different reasons.

1. *Error* results when care is not taken in recording transactions, posting transactions, summarizing accounts, and so forth. Errors are not intentional and when detected are immediately corrected.
2. *Disagreement* results when different people arrive at different conclusions based on the same set of facts. Because accounting involves judgment and estimates, opportunities for honest disagreements in judgment abound. These disagreements often come about because of the different incentives that motivate those involved with producing the financial statements.
3. *Fraud* results from intentional errors. As in the Phar-Mor case, fraudulent financial reporting occurs when management chooses to intentionally manipulate the financial statements to serve their own purposes.

An accounting system should be designed to significantly reduce the possibility that problems, in whatever form, will make their way into financial statements.

### Types of Errors in the Reporting Process

Errors, and other problems, can occur in most stages of the accounting cycle. We will first describe the kinds of errors that can occur and then identify controls to minimize these errors.

**ERRORS IN TRANSACTIONS AND JOURNAL ENTRIES** Transactions, such as selling products or services, paying salaries, buying inventory, and paying taxes, are entered into the accounting records through journal entries. For example, if $5,000 is paid to an attorney for legal services, the following journal entry is made:

| | | |
|---|---|---|
| Legal Expense | 5,000 | |
| Cash | | 5,000 |
| *Paid an attorney $5,000 for legal services.* | | |

An invoice from the law firm should support this entry. Errors could be introduced into the financial reporting process if (1) the invoice from the law firm was lost and the legal expense was not entered into the accounting records, (2) the amount entered into the accounting records was incorrect, or (3) the accounts involved were incorrectly identified.

**ERRORS IN ACCOUNTS AND LEDGERS** Even when journal entries properly summarize legitimate transactions, errors and misstatements can be introduced into the financial records because journal entry data are not summarized appropriately or accurately in the ledgers. Using the previous example of paying an attorney $5,000, errors could occur at the posting stage of the accounting cycle if the legal expense is entered in the wrong account in the ledger or if an incorrect amount is posted to the correct account. Posting the correct amount to the wrong expense account would result in the correct total for all expenses, but individual expense account balances would be incorrect.

A more severe error occurs at the ledger stage if amounts that should be included in asset or liability accounts are improperly included in expense or revenue accounts, or vice versa. Ex-

amples include (1) recording insurance expense as prepaid insurance (an asset), (2) recording purchases of goods for resale as inventory (an asset) when they should be reported as cost of goods sold (an expense), (3) recording a receipt of cash as revenue when it should be recorded as unearned revenue (a liability), or (4) not reporting supplies used as an expense.

## Disagreements in Judgment

Many think that the accounting profession involves exactness and precision and that the accountant simply records the facts, totals the numbers, and presents unbiased results. Nothing could be further from the truth. Accountants are constantly making judgments and estimates regarding the past and the future. Let s return to the landscaping business that we introduced in Chapters 3 and 4 to illustrate some of the judgments involved in the accounting process.

As your lawn care and landscaping business has become more and more successful, you have been able to obtain bigger and better jobs. Recently, you signed a contract to provide all the landscaping for a new condominium complex currently under construction. The terms of the contract call for payment of one-half of the contract amount up front and the remaining one-half upon completion. You begin working on the condominium landscaping in early December, but it looks as though you will not finish until well into January. To prepare financial statements at the end of the calendar year, how much of the condominium contract should you report as revenue? Well, that depends on how close to completion the job is. If you are 25% complete, it makes sense to report 25% of the contract amount as revenue. If you are 75% complete, report 75% of the contract amount as revenue. The hard part is determining how much of the job has been completed.

Suppose you contact two landscapers (friendly competitors) and ask them to provide you with an estimate of how complete the landscaping job is at year-end. Would it be possible for these two people to arrive at different conclusions regarding the percentage of completion? Which one would be right? Different people can look at the same set of facts and arrive at different conclusions. They re not wrong, just different. In this case, the different estimates would result in different financial statement numbers. These different numbers could make the difference between your company showing a profit or reporting a loss.

Consider another example. Most of your customers pay promptly, but some take a little longer to pay. A few customers discontinue their lawn care service and never pay for some of the services they received. Your problem is that when you provide a service for a customer, you do not know if that customer will be a prompt payer, a slow payer, or a no payer. Recognizing that a certain percentage of your customers will be no payers, should you record a receivable (and a revenue) for the full amount of every sale? As you will learn in Chapter 6, most businesses recognize that a certain percentage of receivables will be uncollectible. How should you arrive at the amount of your receivables that won t be collected? Is it possible that your estimate will be slightly off? Could different people legitimately arrive at different estimates? Of course. These different estimates will then affect the results reported in the financial statements.

## Fraudulent Financial Reporting

As mentioned previously, fraudulent financial reporting is intentional. To illustrate, consider the journal entry made previously related to legal expense. Assume that a company s accountant embezzles $5,000 and prepares the following journal entry to conceal the fraud:

| | | |
|---|---|---|
| Legal Expense | 5,000 | |
| Cash | | 5,000 |
| *Paid an attorney $5,000 for legal services.* | | |

The accountant could prepare the journal entry without supporting documentation (e.g., an invoice) or create a fictitious invoice from a phantom law firm.

Unless someone is watching closely, the theft may go undetected. Because the accountant made a fictitious entry to Legal Expense, the accounting records appear to be correct, and the

## business environment essay

**Manipulation of Journal Entries** Adam F.* graduated in accounting from a large university. Upon graduation, he accepted a job with one of the Big 5 CPA firms. He worked there for three years, during which time he became a CPA and served as the in-charge auditor on a number of audit engagements.

After three years, he left the CPA firm to accept a job as controller in a small bank. Along with two other individuals, he invested in a farm implement dealership. Unfortunately, business wasn t as good as expected, and the dealership lost large sums of money. To keep the business afloat, Adam began embezzling money from the bank. At first he stole small amounts. As the business s cash needs became greater, he increased the amounts until he was stealing more than $15,000 per month. He concealed his frauds by creating journal entries debiting Advertising Expense and crediting Cash, as shown:

| | | |
|---|---|---|
| Advertising Expense . . . . . | 15,000 | |
| Cash . . . . . | | 15,000 |
| *Paid monthly advertising cost.* | | |

accounting equation still balances. Cash, an asset, is stolen, and the recognition of an expense results in owners equity being reduced by the same amount.

| Assets | = | Liabilities | + | Owners Equity |
|---|---|---|---|---|
| (decreased by $5,000) | | | | (decreased by $5,000) |

Before reading about the safeguards designed to minimize the types of problems we have just discussed, can you think of things that could be done to ensure that errors, disagreements in judgment, and fraudulent financial reporting do not occur?

In addition, sometimes amounts for which there are no legitimate transactions are added or deducted directly from financial statement balances. Examples are listing sales that don t exist (as was the case with **BAUSCH & LOMB**, the eye care company, which was making false shipments to distributors at year-end resulting in an overstatement of profits by over $80 million); not recording sales returns or uncollectible receivables (as was the case with the vacuum maker, **REGINA**, which did not record the return of over 40,000 vacuums); and not recording various expenses, understating liabilities, and overstating assets such as inventory or receivables (as was the case with Phar-Mor). Sometimes these types of errors are unintentional, but in many cases they are intentional.

## to summarize

The accounting cycle and resulting financial reports of most organizations are accurate and can be relied on. Nevertheless, unintentional errors, disagreements in judgment, and fraudulent financial reporting can occur in the accounting process, thereby producing erroneous financial reports.

**2**

Describe the safeguards employed within a firm to ensure that financial statements are free from problems.

## SAFEGUARDS DESIGNED TO MINIMIZE PROBLEMS

Accounting is a language just as English is. In the same way that a falsehood can be written in English, a misleading story can be expressed by financial statements. By far, the vast majority of financial statements are as accurate as possible, and the preparers are honest. Most organizations

Adam s fraud went undetected until he became greedy and expanded his methods of embezzling. He was caught when a customer of the bank twice made interest payments of $10,000. Adam took the second $10,000 payment and deposited it in his own account at the bank. The customer, realizing the error, notified the bank. The search for the missing $10,000 revealed Adam s thefts.

As a result of his fraud, Adam was sentenced to four years in prison and entered into a restitution agreement to repay the bank. The IRS also informed Adam that his embezzled funds were taxable, and since he hadn t paid timely taxes, he owed fines, penalties, interest, and taxes totaling nearly $100,000. When released from jail, Adam will probably spend the rest of his life paying back the bank and the IRS the $250,000 he now owes.

*All Business Environment Essays in this chapter are real cases. In some instances, such as here, the names have been changed.

**Source:** This case is from the video *The Red Flags of Fraud*, The Association of Certified Fraud Examiners, Austin, Texas.

prepare accounting records and financial reports with integrity, and in most cases, preparers are even conservative when judgments and estimates are required. To help ensure that financial reports are accurate, and to prevent problems such as those that occurred at **PHAR-MOR**, several safeguards have been built into the financial reporting structure of most organizations in the United States. As a future user of accounting information, you should be aware of these safeguards and the reasons for their existence.

**internal control structure** Safeguards in the form of policies and procedures established to provide management with reasonable assurance that the objectives of an entity will be achieved.

Most organizations build controls into their organization and financial reporting processes so that abuses are difficult. These safeguards, called the **internal control structure**, are internal to the organization preparing the financial statements. The American Institute of Certified Public Accountants (AICPA) has defined *internal control* as the policies and procedures established to provide reasonable assurance that specific entity objectives will be achieved. [3] These internal controls protect investors and creditors and even help management in their efforts to run their organizations as effectively and efficiently as possible. As a future investor and financial statement user, you should be aware of these controls. When you encounter an organization or financial statements that do not have these controls and safeguards, you should exercise extreme care. Most companies have the following five concerns in mind when they are designing internal controls:

1. To provide accurate accounting records and financial statements containing reliable data for business decisions.
2. To safeguard assets and records. Most companies think of their assets as including their financial assets (such as cash or property), their employees, their confidential information, and their reputation and image.
3. To effectively and efficiently run their operations, without duplication of effort or waste.
4. To follow management policies.
5. To comply with the Foreign Corrupt Practices Act, which requires companies to maintain proper record-keeping systems and controls.

**Foreign Corrupt Practices Act (FCPA)** Legislation requiring any company that has publicly traded stock to maintain records that accurately and fairly represent the company s transactions; additionally, requires any publicly traded company to have an adequate system of internal accounting controls.

The responsibility for establishing and maintaining the internal control structure belongs to a company s management. Until several years ago, this responsibility was only implied; there was no formal legal requirement. However, in the wake of illegal political campaign contributions, business frauds, and numerous illegal payments to foreign officials in exchange for business favors, Congress passed the **Foreign Corrupt Practices Act (FCPA)** of 1977. As a result of this legislation, all companies whose stock is publicly traded are required by law to keep records

3 AU Section 319, par. 06, Codification of Statements on Auditing Standards, CCH Inc., 1994, p. 98.

business environment essay

**Manipulating the Ledgers** Jane W. was the bookkeeper and proof operator for a small bank. Over a period of four years she embezzled over $3 million an amount that exceeded 10% of the bank s assets. Jane s method of theft was simple. She would find something she wanted such as a new automobile. She would write the dealer a check for the car. Then, when her check came back from the Federal Reserve, she would allow it to be deducted from the bank s master demand deposit account (the general ledger), but not from her specific account (in the subsidiary ledger). As a result, the master account total was reduced and became out of balance with the sum of the individual account balances. To cover the shortage, at the end of each month she would pull some of her bank s previously used cashier s checks and send them to the Federal Reserve. For one day, until it sorted the checks, the Fed-

that represent the firm s transactions accurately and fairly. In addition, they must maintain adequate systems of internal accounting control.

A company s internal control structure can be divided into five basic categories: (1) the control environment, (2) risk assessment, (3) control activities, (4) information and communication, and (5) monitoring. In this chapter, we will cover the control environment and control activities (sometimes called control procedures), as well as the need for monitoring. We will also discuss elements of accounting systems that are important from a control perspective.

## The Control Environment

**control environment** The actions, policies, and procedures that reflect the overall attitudes of top management, the directors, and the owners about control and its importance to the entity.

The **control environment** consists of the actions, policies, and procedures that reflect the overall attitudes of top management, the directors, and the owners about control and its importance to the company. In a strong control environment, management believes control is important and makes sure that everyone responds conscientiously to the control policies and procedures. Some of the key components of the control environment that relate to financial reporting are described below.

**MANAGEMENT PHILOSOPHY AND OPERATING STYLE** Does management set a good example by following controls? Do they stress the importance of controls to other employees? What is their management style? Are they, for example, risk averse or apt to take risks, dominated by one or two individuals or open to input from others, realistic or unrealistic about goals?

An example of a company with a poor management philosophy and operating style was **EQUITY FUNDING**. Equity Funding was a life insurance company that sold policies to individuals and then resold those policies to other insurance companies called reinsurers. Equity Funding s top managers were extremely dominant and dishonest; there were no clear lines of responsibility, budgets were unrealistic, and the company had no system of organizational checks and balances in place. In that environment, top management wrote $2 billion of fictitious life insurance policies and reported the sales and profits from those transactions on the company s financial statements. Management s dishonest actions were so blatant that a climate of moral decay filtered throughout the organization, resulting in widespread cheating by employees on travel reimbursements and other abuses.

**organizational structure** Lines of authority and responsibility.

**ORGANIZATIONAL STRUCTURE** Does the **organizational structure** identify clear lines of authority and responsibility? Is the organizational structure so complex that dishonest transactions can be concealed?

An example of a complex organizational structure that was used to conceal a large fraud (approximately $300 million) is the **ESM COMPANY** in Ohio. ESM was a brokerage business

eral Reserve would treat her bank s canceled checks as if they were legitimate checks received by the bank from its customers, and for which the Federal Reserve should credit her bank. Jane was caught when someone at the Federal Reserve noticed that a cashier s check she sent had been processed so many times that it was completely black.

As a result of her fraud, Jane was sentenced to eight years in prison. She also entered into a restitution agreement to repay her company and ended up owing considerable taxes to the IRS on her stolen funds. Jane and her husband (who assisted with the fraud) now owe a total of nearly $5 million to the bank and the IRS. For the rest of their lives, they will be in financial bondage.

**Source:** W. S. Albrecht, G. Wernz, and T. Williams, *Fraud: Bringing Light to the Dark Side of Business*, Irwin, 1995, p. 265.

that bought and sold government securities. Over a period of seven years, the officers of the company funneled cash to themselves until the company owed approximately $300 million more in payables than it had in receivables. This net payable was concealed by setting up related entities and reporting a fictitious receivable from one of those companies in ESM Company s financial statements. If anyone had investigated the receivable, he or she would have found that the related company from which it was supposedly collectible was bankrupt.

A good organizational structure requires that only one person in a department be responsible for each function, such as cash receipts, cash disbursements, purchasing, payroll preparation, or credit approval. It takes little imagination to envision the confusion that would result if a business gave every employee unlimited purchasing authority, for example. There would be overstocking, duplication of orders, loss of quantity discounts, and tremendous waste. By designating responsibility for the purchasing function, or any other function, the organization runs more smoothly and maintains control.

Normally, each company will have an organizational chart that not only specifies the formal lines of authority, but also indicates departmental responsibilities. In addition to formal lines of authority, each organization will have an informal hierarchy that develops based on the personalities of the individuals and the group dynamics of the situation.

**audit committee** Members of a company s board of directors who are responsible for dealing with the external and internal auditors.

**AUDIT COMMITTEE** Every major company has a board of directors. A good control environment would suggest that a subset of these directors should form an **audit committee**. Generally, the audit committee should be comprised of outside directors (members of the board who are not officers of the company). The internal and external auditors would then be accountable to this audit committee.

Companies listed on the New York Stock Exchange are required to have audit committees comprised entirely of outside directors who are not employees of the company. The audit committee is usually charged with the responsibility of supervising the company s financial reporting process, including internal control and compliance with applicable laws and regulations. Auditors who suspect wrongdoing in financial reporting should forward those concerns to the audit committee.

**accounting system** The set of manual and computerized procedures and controls that provide for identifying relevant transactions or events, preparing accurate source documents, entering data into the accounting records accurately, processing transactions precisely, updating master files properly, and generating correct documents and reports.

## The Accounting System

The purpose of a company s accounting system is to identify, assemble, classify, analyze, record, and report the entity s transactions and to maintain accountability for assets. To be effective, the **accounting system** should contain adequate controls to ensure that seven control objectives are met.

1. *Validity.* Only valid transactions are recorded. If fictitious sales are recorded, for example, reported revenues will be too high, and the integrity of the financial statements will be lost.
2. *Authorization.* All transactions are properly authorized. If, for example, any employee could authorize purchases, a company might make duplicate purchases of the same items or purchase unneeded items.
3. *Completeness.* All legitimate transactions are recorded and the records are complete. If, for example, all liabilities are not recorded, a company will report a more favorable financial condition than actually exists.
4. *Classification.* All transactions are properly classified. For example, the current portion of long-term debt should be classified as a current liability. Incorrect classification would result in incorrect liability subtotals that would affect such ratios as the current ratio.
5. *Timeliness.* All transactions are recorded in the proper time period. A company might try to make its revenues and income look better than they are, for example, by recording early January sales in December.
6. *Valuation.* All transactions are properly valued. For example, if a receivable is uncollectible, it should not be classified as a current asset.
7. *Posting and summarization.* All transactions are properly included in subsidiary records and correctly summarized. Errors could occur, for example, if an accounts receivable entry was posted to the accounts payable account.

## Control Activities (Procedures)

**control activities (procedures)** Policies and procedures used by management to meet their objectives; generally divided into adequate segregation of duties, proper procedures for authorization of transactions and activities, adequate documents and records, physical control over assets and records, and independent checks on performance.

**Control activities** or **control procedures** are those policies and procedures, in addition to the control environment and accounting system, that management has adopted to provide reasonable assurance that the company s established objectives will be met and that financial reports are accurate. Generally, control activities fall into five categories: adequate segregation of duties, proper procedures for authorization, adequate documents and records, physical control over assets and records, and independent checks on performance.

**ADEQUATE SEGREGATION OF DUTIES** A good internal control system should provide for the appropriate **segregation of duties**. This means that no one department or individual should be responsible for handling all phases of a transaction. In some small businesses, this segregation is not possible because the limited number of employees prevents division of all the different functions. Nevertheless, there are three functions that should be performed by separate departments or by different people.

**segregation of duties** A strategy to provide an internal check on performance through separation of authorization of transactions from custody of related assets, separation of operational responsibilities from record-keeping responsibilities, and separation of custody of assets from accounting personnel.

1. *Authorization.* Authorizing and approving the execution of transactions; for example, approving the sale of a building or land.
2. *Record keeping.* Recording the transactions in the accounting journals.
3. *Custody.* Having physical possession of or control over the assets involved in transactions, including operational responsibility; for example, having the key to the safe in which cash or investment securities are kept or, more generally, having control over the production function.

By separating the responsibilities for these duties, a company realizes the efficiency derived from specialization and also reduces the errors, both intentional and unintentional, that might otherwise occur.

An example of a problem resulting from the nonsegregation of the custody and record-keeping functions occurred when a young employee of a wholesale candy distributor both opened incoming mail and kept the accounts receivable file. Needing money for a family emergency, she stole $300 and did not show the receivable as collected. After realizing how easy it was, over time she took $76,000 by delaying the recording of receivables collected. She was eventually caught, but her theft affected the financial statements because receivables were misstated, as was the financial health of the company.

**PROPER PROCEDURES FOR AUTHORIZATION** A strong system of internal control requires proper authorization for every transaction. In the typical corporate organization, this authorization originates with the stockholders who elect a board of directors. It is then delegated

from the board of directors to upper-level management and eventually throughout the organization. While the board of directors and upper-level management possess a fairly general power of authorization, a clerk usually has limited authority. Thus, the board would authorize dividends, a general change in policies, or a merger; a clerk would be restricted to authorizing credit or a specific cash transaction. Only certain people should be authorized to enter data into accounting records and prepare accounting reports.

**ADEQUATE DOCUMENTS AND RECORDS** A key to good controls is an adequate system of documentation and records. As explained in Chapter 3, documents are the physical, objective evidence of accounting transactions. Their existence allows management to review any transaction for appropriate authorization. Documents are also the means by which information is communicated throughout an organization. In short, adequate documentation provides evidence that the recording and summarizing functions that lead to financial reports are being performed properly. A well-designed document has several characteristics: (1) it is easily interpreted and understood, (2) it has been designed with all possible uses in mind, (3) it has been prenumbered for easy identification and tracking, and (4) it is formatted so that it can be handled quickly and efficiently. Documents can be actual pieces of paper or information in a computer database.

**physical safeguards** Physical precautions used to protect assets and records, such as locks on doors, fireproof vaults, password verification, and security guards.

**PHYSICAL CONTROL OVER ASSETS AND RECORDS** Some of the most crucial policies and procedures involve the use of adequate **physical safeguards** to protect resources. For example, a bank would not allow significant amounts of money to be transported in an ordinary car. Similarly, a company should not leave its valuable assets unprotected. Examples of physical safeguards are fireproof vaults for the storage of classified information, currency, and marketable securities; and guards, fences, and remote control cameras for the protection of equipment, materials, and merchandise. Records and documents are also important resources and must be protected. Re-creating lost or destroyed records can be costly and time-consuming, so companies make backup copies of records. The high cost of backup records (often on microfilm) is usually more than justified in protecting such valuable resources.

Providing proper safeguards reduces opportunities for employees to misappropriate assets. Each firm needs a comprehensive security program specifically engineered to protect its corporate assets. An example of a fraud committed in a setting of poor physical safeguards was the

Many companies use physical safeguards, such as surveillance cameras, to protect their resources.

business environment essay

**An Example of Poor Controls** Earlier in this chapter (pages 210 211), the $3.01 million theft by Jane W., proof operator in a bank, was discussed. Her fraud was possible because of poor internal controls in her bank. Here are some of the major control weaknesses that existed.

1. All documents were to be accessible to external auditors. Yet Jane kept a locked cabinet next to her desk and only she had a key. A customer whose statement had been altered by Jane complained, but was told that he would have to wait until Jane returned from vacation; the documentation relating to his account was in Jane s locked cabinet.
2. The bank required every employee and every officer to take a consecutive two-week vacation. At Jane s request, management allowed this control to be broken. Based on her memos that proof would get behind if she took a two-week vacation, Jane was allowed to take her vacation one day at a time. In addition, no one was allowed to perform Jane s most sensitive duties while she was away.
3. General ledger entries were supposed to be approved by an individual other than the person who completed the entries. In order to override this control, Jane had her employees presign 10 or 12 general ledger approvals, so she wouldn t have to bother them when they were busy.
4. Opening and closing procedures were supposed to be in place to protect the bank, but many employees had all the keys necessary and could enter the bank at will.

crime against the **PERINI CORPORATION**. Approximately $1,150,000 of checks were written on the company s accounts by an employee. Access to the checks was easy because Perini kept its supply of unused checks in the same unlocked storeroom where the styrofoam coffee cups were stored. Every clerk and secretary had access to the storeroom. The checks had been written on a check-writing machine, which automatically signed the president s name. Despite inherent control procedures in the machine, and its CPA firm s warning to implement specific control procedures, the company found it inconvenient to use most of the control procedures. For example, the machine deposited signed checks into a box that was supposed to be locked; the key was supposed to be kept by an employee in a different department. No such employee was assigned, however, and the box was left unlocked. Furthermore, no one paid attention to the machine s counter, which kept track of the number of checks written for comparison with vouchers authorized for payment.

**independent checks** Procedures for continual internal verification of other controls.

**INDEPENDENT CHECKS ON PERFORMANCE** Having **independent checks** on performance is a valuable control technique. Independent checks incorporate reviews of functions, as well as the internal checks created from a proper segregation of duties.

There are many ways to independently check performance. Using independent reviewers, such as auditors, is one of the most common. In addition, mandatory vacations, where another employee performs the vacationing person s duties, periodic rotations or transfers, or merely having someone independent of the accounting records reconcile the bank statement are all types of independent checks.

## Reporting on Internal Controls

Public companies are required to include in their annual report a statement signed by management that acknowledges their responsibility for maintaining a good system of internal controls. The statement shown in Exhibit 5-1 on page 216 was included in the 1999 annual report of **SARA LEE CORPORATION**.

5. An effective internal audit function was supposed to be in place. For a period of two years, however, no internal audit reports were issued. Even when the reports were issued, internal auditors did not check employees bank accounts or perform a critical control test, such as surprise openings of the bank s incoming and outgoing mail to and from the Federal Reserve.
6. Employees bank accounts were not regularly reviewed by internal audit or by management. On the rare occasions when they were reviewed, numerous deposits to and checks drawn on Jane s account that exceeded her annual salary were not questioned.
7. Loans were supposed to be made to employees only if the employees met all lending standards required of normal customers. At one point, the bank made a $170,000 mortgage loan to Jane, without requiring any explanation as to how the loan would be repaid or how she could afford such a house.
8. Managers were supposed to be reviewing key documents and reports daily. Either managers didn t review these reports, or they didn t pay close attention to the reports when they did perform the reviews. There were daily fluctuations in the reports of over $3 million. The reports revealed huge deposits to and checks drawn on Jane s account. In addition, Jane appeared on the overdraft report 97 times during the first four years she was employed.

**Source:** W. S. Albrecht, G. Wernz, and T. Williams, *Fraud: Bringing Light to the Dark Side of Business*, Irwin, 1995, p. 265.

## to summarize

Most organizations have an internal control system that, among other things, helps ensure integrity in financial reports. The various elements of control that relate to financial reporting are summarized as follows:

| Control Environment | Accounting System | Control Procedures |
|---|---|---|
| 1. Management philosophy and operating style. | 1. Valid transactions. | 1. Segregation of duties. |
| 2. Organizational structure. | 2. Properly authorized transactions. | 2. Proper procedures for authorization. |
| 3. Audit committee. | 3. Completeness. | 3. Adequate documents and records. |
| | 4. Proper classification. | 4. Physical control over assets and records. |
| | 5. Proper timing. | 5. Independent checks on performance. |
| | 6. Proper valuation. | |
| | 7. Correct summarization. | |

Public companies are required to include in their annual report a statement signed by management that describes and accepts responsibility for the internal controls of the company.

**3**

Understand the need for monitoring by independent parties.

## THE NEED FOR MONITORING

A firm s internal control structure is designed to minimize the occurrence of intentional and unintentional problems in a firm s financial statements. But a system of internal controls provides

**exhibit 5-1** Sara Lee s 1999 Management Letter

**Management s Report on Financial Information**

Management of Sara Lee Corporation is responsible for the preparation and integrity of the financial information included in this annual report. The financial statements have been prepared in accordance with generally accepted accounting principles and, where required, reflect our best estimates and judgments.

It is the corporation s policy to maintain a control-conscious environment through an effective system of internal accounting controls supported by formal policies and procedures communicated throughout the corporation. These controls are adequate to provide reasonable assurance that assets are safeguarded against loss or unauthorized use and to produce the records necessary for the preparation of financial information. There are limits inherent in all systems of internal control based on the recognition that the costs of such systems should be related to the benefits to be derived. We believe the corporation s systems provide this appropriate balance.

The control environment is complemented by the corporation s internal auditors, who perform extensive audits and evaluate the adequacy of and the adherence to these controls, policies and procedures. In addition, the corporation s independent public accountants have developed an understanding of our accounting and financial controls, and have conducted such tests as they consider necessary to support their report below.

The Board of Directors pursues its oversight role for the financial statements through the Audit Committee, which is composed solely of outside directors. The Audit Committee meets regularly with management, the corporate internal auditors and Arthur Andersen LLP, jointly and separately, to receive reports on management s process of implementation and administration of internal accounting controls, as well as auditing and financial reporting matters. Both Arthur Andersen LLP and the internal auditors have unrestricted access to the Audit Committee.

The corporation maintains high standards in selecting, training and developing personnel to help ensure that management s objectives of maintaining strong, effective internal controls and unbiased, uniform reporting standards are attained. We believe it is essential for the corporation to conduct its business affairs in accordance with the highest ethical practices as expressed in Sara Lee Corporation s Global Business Standards.

*John H. Bryan*

John H. Bryan
Chairman of the Board
and Chief Executive Officer

*Judith A. Sprieser*

Judith A. Sprieser
Senior Vice President
and Chief Financial Officer

assurance as to the quality of the resulting financial information only if the system is functioning properly. What, or who, makes sure the system is functioning properly? What happens when disagreements in judgment arise? Who referees to ensure that the estimates and judgments that are reflected in the financial statements are reasonable? In this section, we discuss a mechanism, developed over time, that attempts to ensure that the financial statements provide an accurate and fair presentation of a company s financial status.

Let s return to our landscaping example. You have determined that your annual salary is a fixed monthly amount plus an annual bonus based on the net income of the business. The better the business performs, the higher your pay. Many companies actually reward their top executives using similar incentive plans (though many of these incentive plans can become quite complex). Now, what is your incentive? Well, it seems pretty clear that your incentive is to report as high a net income figure as possible. The higher your company s net income, the higher your annual bonus.

How can you increase net income given your current level of operations? Since you are a person of integrity and honor, falsifying transactions (e.g., fraudulent financial reporting) is out of the question. One possibility is to review your estimates regarding the percentage of revenues to be recognized and the percentage of accounts receivable that may be uncollectible.

Recall from a previous section that we had two of our landscaping friends provide us with independent estimates of the percentage of completion on our condominium landscaping project. Suppose that one estimate was that the project was 50% complete. The other was that the project was 60% complete. Which would you select as being more accurate? Well, the 60% estimate would result in a higher net income, which would mean a higher year-end bonus this year. Also, using the 60% estimate would be reasonable because it was provided by an independent source.

You also examine your accounts receivable to determine what percentage of those receivables might be uncollectible in the future.[4] Since you are dealing with estimates about future events, there is no right answer. You estimate that uncollectible receivables could be anywhere from 2 to 4% of the existing Accounts Receivable balance. Should you split the difference and say 3%? You could, but why not say 2%? After all, 2% is a possible outcome, and if you use the estimate of 2%, net income will be higher, again resulting in a higher year-end bonus for you.

**fyi**

In 1999, **GENERAL MOTORS** estimated that the amount of its total pension and postretirement health-care obligations to be paid in the future relating to past and current employees exceeded $127 billion.

Financial statements are full of estimates and judgments. Here we have illustrated just two areas involving estimates revenues and uncollectible accounts. The financial statements of large companies involve many estimates relating to the future life of equipment and buildings, the amount to be paid in the future for warranties on products and services, and the amount of future benefits to be paid to retirees, to name a few. You might expect all these estimates to average out. That is, sometimes those that have a favorable effect on net income are used, and sometimes those that have an unfavorable effect are used. If estimates were randomly chosen, this would probably happen. But remember that these estimates aren t randomly chosen. In the case of your landscaping business, you are choosing the estimates.

Suppose that in every case involving an estimate, you elected to present the estimate that was most favorable to the firm s net income. Your annual bonus would certainly look nice, but would the resulting financial statements provide a fair assessment of your company s financial performance? Maybe, maybe not.

**caution**

We are not accusing management of misrepresenting the financial results of their companies. What we are saying is that management has an incentive to make things look as favorable (within the bounds of ethical disclosure) as possible.

As part owner[5] of the landscaping company, and with your compensation based on net income, you might have a tough time being objective when it comes to making estimates; you have an economic incentive to influence net income in a certain direction. But you also recognize the need to provide relevant and reliable financial information relating to the performance of the company.

As you wrestle with this issue of estimates in the financial statements, there is another issue to consider as well. We stated that an internal control system is designed to minimize the occurrence of errors and irregularities in the financial reporting process. While the system should not allow errors in posting or transactions to be fabricated, how do we know that the internal control system is running as designed? How can you obtain some assurance that errors, biased disagreements in judgment, and fraudulent financial reporting are not a part of your accounting system? In the next section, we discuss another major factor that ensures that financial information is presented with reliability and integrity.

## to summarize

Because accounting involves estimates and judgment, management has an opportunity to influence the outputs of the accounting process. Managers of a business often have an incentive to provide financial statement information that appears as favorable as possible. While the vast majority of managers would not intentionally bias the financial statements, their incentives may cause them to influence the process.

4 As you will learn in Chapter 6, the estimate of uncollectible accounts receivable will affect the expense for the period, thereby affecting net income.

5 Recall that you own only part of the company. Your parents and the bank (we illustrated both of these possibilities) own the other part.

**4**

Describe the role of auditors and how their presence affects the integrity of financial statements.

# THE ROLE OF AUDITORS IN THE ACCOUNTING PROCESS

Someone needs to check and make sure that the accounting system is running as designed and that the resulting financial statements fairly present the financial performance of the company. Auditors are that someone. Auditors provide management (and stockholders) with some assurance that the internal control system is functioning properly and that the financial statements fairly represent the financial performance of the firm. Two types of auditors are typically employed by management internal and external auditors.

## Internal Auditors

**internal auditors** An independent group of experts (in controls, accounting, and operations) who monitor operating results and financial records, evaluate internal controls, assist with increasing the efficiency and effectiveness of operations, and detect fraud.

Most large organizations have a staff of **internal auditors**, an independent group of experts in controls, accounting, and operations. This group s major purpose is to monitor operating results and financial records, evaluate internal controls, assist with increasing the efficiency and effectiveness of operations, and even detect fraud. The internal audit staffs in some large organizations include over 100 individuals. The audit manager reports directly to the president (or other high-level executive officer) and to the audit committee of the board of directors. By performing independent evaluations of an organization s internal controls, the internal auditors are helping preserve integrity in the reporting process. Employees who know that internal auditors are reviewing operations and reports are less likely to manipulate records. Even if they do, their actions may be revealed by the work of the internal auditors.

Internal auditors responsibilities vary considerably, depending upon the organization. Some internal audit staffs consist of only one or two employees who spend most of their time performing reviews of financial records or internal controls. Other organizations may have a large number of auditors who search for and investigate fraud, work to improve operational efficiency and effectiveness, and make sure their organization is complying with various laws and regulations.

Organizations that have a competent group of internal auditors generally have fewer financial reporting problems than do organizations that don t have internal auditors. An example of an industry that generally did not have effective internal audit staffs is the savings and loan industry, where many companies went bankrupt during the late 1980s. In many of those companies, managers who were committing fraud did not want internal auditors, who would have made it more difficult for management to manipulate financial statements.

## External Auditors

**external auditors** Independent CPAs who are retained by organizations to perform audits of financial statements.

**generally accepted auditing standards (GAAS)** Auditing standards developed by the AICPA.

Probably the greatest safeguard in the financial reporting system in the United States is the requirement that firms have external audits. **External auditors** examine an organization s financial statements to determine if they are prepared and presented in accordance with generally accepted accounting principles and are free from material (significant) misstatement. External audits are performed by certified public accounting (CPA) firms. CPA audits are required by the Securities and Exchange Commission and the major stock exchanges for all companies whose stock is publicly traded. Even companies that are not public, however, often employ CPAs to perform audits of their financial statements. Banks and other lenders usually require audits, and audits can instill confidence in users of financial reports. In conducting audits, CPAs are required by **generally accepted auditing standards (GAAS)** to provide reasonable assurance that significant fraud or misstatement is not present in financial statements. Because CPAs cannot audit every transaction of an organization, and because detecting collusive management deception is sometimes impossible, it is not possible for auditors to guarantee that financial statements are correct. Instead, they can only provide reasonable assurance that financial statements are presented fairly. Even with audits, there are still a few occasions when major financial statement fraud is not detected.

**f y i**

As of September 1, 2000, five international public accounting firms the Big 5 were responsible for auditing the majority of the Fortune 500 companies, as well as most other large, publicly traded companies in the United States.

CPA audits of financial statements have become very important in the United States because of the enormous size of many corporations. Because the stockholders, who own corporations, are usually different individuals from a company s management, audits provide comfort to these owners/investors that management is carrying out its stewardship function appropriately.

What could auditors do to ensure that the financial reporting system is working properly? Be specific.

## What Do Auditors Do?

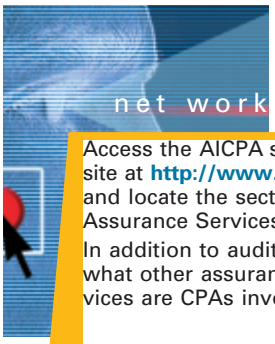
**caution**

Auditors are responsible for evaluating the assumptions and estimates of management as well as testing the internal control system. The auditors do not make the assumptions and estimates, nor are they responsible for designing the internal control system.

While management has the primary responsibility of ensuring that the internal control system is functioning properly, internal auditors provide an independent assessment of how well the controls are working. External auditors usually study the internal control system to see if they can rely on it as they perform their audits. After all, if the internal control system is functioning correctly, it increases the likelihood that the resulting financial information is reliable. Often the external auditors will rely on the assessment of the internal controls made by the internal auditors.

Auditors gain confidence in the quality of the reporting process using several different processes: interviews, observation, sampling, confirmation, and analytical procedures. Several of these processes are used by both internal and external auditors, while some are used primarily by external auditors. Exhibit 5-2 provides a summary of these procedures and indicates who uses them most often. A brief discussion of each process then follows.

**INTERVIEWS** Auditors *interview* employees to ensure that procedures are understood, proper documentation is being made, and proper authorization is being obtained. Through interviews, auditors identify potential weaknesses in the control system that will be examined using testing procedures.




Access the AICPA s Web site at **http://www.aicpa.org** and locate the section on Assurance Services.

In addition to auditing, with what other assurance services are CPAs involved?

**OBSERVATION** *Observation* is done to verify compliance with procedures and to ensure that accounting records agree with physical records. For example, auditors in a bank will count the cash in a vault to ensure that recorded amounts agree with the actual cash on hand. Auditors will also verify the existence of inventory by doing a physical count of product. In addition to using observation to verify the existence of assets, auditors will also use observation to ensure that employees are complying with proper procedures.

**SAMPLING** As mentioned previously, auditors cannot examine every transaction. Typically, they will select a *sample of transactions* for analysis. Based on the results of their analysis of the sample, they may conclude that the internal control procedures are being complied with, resulting in reliable financial information. Auditors may also conclude from the results that the internal control system is not reliable, resulting in further testing being required.

**CONFIRMATION** Used primarily by external auditors, *confirmations* are used to verify the balances in accounts that result from transactions with outsiders. For example, customers are often contacted and asked to verify account balances. Banks are contacted to verify loan amounts, lines of credit, and other account balances. This procedure ensures that the balances listed on the financial statements do, in fact, exist.

**ANALYTICAL PROCEDURES** *Analytical procedures* are used to provide guidance to external auditors as they attempt to identify areas that may deserve attention. Analytical procedures involve the use of such techniques as comparative ratio analysis (the same ratio analysis we have been doing in Chapters 2, 3, and 4). By comparing the results of ratio analysis from one period to the next, auditors may be able to identify areas where additional investigation may be appropriate.

**exhibit 5-2** Audit Processes Used by Auditors

| | Internal Auditors | External Auditors |
|---|---|---|
| Interviews | X | X |
| Observation | X | X |
| Sampling | X | X |
| Confirmation | | X |
| Analytical procedures | | X |

At the completion of an audit, the auditors issue a report that accompanies the financial statements and describes to readers, in very general terms, what was done by the audit firm and whether accounting rules were followed; the report also indicates an opinion as to whether the financial statements and the accompanying notes fairly represent the financial condition of the firm. As an example of an auditors report, **PHAR-MOR** s 1999 auditors report, taken from the company s 1999 financial statements, is included in Exhibit 5-3.

## Are Auditors Independent?

Auditors are hired by *management* to make sure that the financial statements prepared by *management* fairly represent the financial performance of the company. Since management is paying the auditors, is there a danger that the auditors may not be independent? Is there a possibility that auditors will go along with whatever management says because management is paying them? That possibility exists, but there are a number of factors that work as a counterbalance.

First, recall from our discussion of the internal control structure that the Foreign Corrupt Practices Act requires companies to maintain an adequate system of internal controls. If management knowingly violate this law, they can go to jail (a number of top managers have) and would be subject to personal fines. In addition, the company is subject to corporate fines. Thus, management would be taking a big risk if they interfere with the auditors.

**exhibit 5-3** Phar-Mor s 1999 Independent Auditors Report

**INDEPENDENT AUDITORS REPORT**

To the Board of Directors and Stockholders of Phar-Mor, Inc.:

We have audited the accompanying consolidated balance sheets of Phar-Mor, Inc. and subsidiaries (the Company ) as of July 3, 1999 and June 27, 1998, and the related consolidated statements of operations, changes in stockholders equity and cash flows for the fifty-three weeks ended July 3, 1999, the fifty-two weeks ended June 27, 1998 and the fifty-two weeks ended June 28, 1997. Our audits also included consolidated financial statement Schedule II, Valuation and Qualifying Accounts. These financial statements and financial statement schedules are the responsibility of the Company s management. Our responsibility is to express an opinion on these financial statements and financial statement schedules based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Phar-Mor, Inc. and subsidiaries as of July 3, 1999 and June 27, 1998 and the results of its operations and its cash flows for the fifty-three weeks ended July 3, 1999, the fifty-two weeks ended June 27, 1998 and the fifty-two weeks ended June 28, 1997, in conformity with generally accepted accounting principles.

In our opinion, the financial statement schedules, when considered in relation to the basic consolidated financial statements taken as a whole, present fairly in all material respects the information set forth therein.

Deloitte & Touche LLP
Pittsburgh, Pennsylvania
September 17, 1999

Second, external auditors have a responsibility to financial statement users to ensure that financial statements are fairly presented. The legal system in the United States provides auditors with financial incentives to remain independent. As an example, the auditors in the Phar-Mor case were sued by plaintiffs for over $1 billion. A jury held the audit firm liable, and that firm settled with the plaintiffs for a lesser, though undisclosed (but not insignificant), amount. Thus, external auditors are taking a big risk if they allow their independence and integrity to be compromised.

Third, auditors have a reputation to protect. The reason auditors are hired at all is because the investing public believes they provide an independent check on the reliability and integrity of the financial information. If an audit firm were no longer perceived in this manner, companies would cease to employ it. CPA firms obtain audit clients based on the quality of their reputation. Would they sell that reputation to the highest bidder? That would be very shortsighted indeed.

Knowing the incentives that influence auditors to provide fair and reliable financial information, we can now begin to see how the issues relating to disagreements in judgment can work themselves out. On the one hand, we have a management team that has an incentive to provide financial statement information that portrays the company in the most favorable position possible. On the other hand, we have auditors who are responsible to ensure that the information being provided is unbiased and fair. If auditors don t live up to their charge, they can end up paying to litigants much more than they ever received in audit fees.

**fyi**

This give and take between the auditors and management typically results in financial statements that fairly reflect the financial performance of a business. For example, in 1998, of 7,016 audits conducted for firms listed on the New York, American, and NASDAQ stock exchanges, only eight involved significant issues on which auditors and management could not reach agreement on disclosure.

The Securities and Exchange Commission (SEC) is working with public accounting firms to ensure that independence remains a keystone of the auditing profession. To that end, in a speech given at the New York University Center for Business and Law on May 10, 2000, SEC chairman Arthur Levitt discussed the issue of independence and outlined the SEC s plan for safeguarding the independence of the auditing profession. That plan includes (1) enhancing the role of the Public Oversight Board, an entity charged with oversight of the profession; (2) working with the Independence Standards Board to modernize investment rules that affect public accounting; and (3) developing initiatives to deal with conflicts that might arise because of the ever-expanding menu of services offered by public accounting firms.

If management is allowed to paint an overly optimistic picture of the firm s performance by using estimates that bias the financial reports, the audit firm will pay (via litigation) if those estimates prove to be materially wrong in the future. To protect itself, the audit firm would actually prefer that management use conservative estimates, but management will not always go along with the auditors in this regard. It is this tension, resulting from differing incentives, that provides financial statement users with information that, taken as a whole, fairly represents the financial performance of a business.

## to summarize

Auditors provide a check and balance to ensure that the financial statements fairly reflect the financial performance of a business. Most large organizations have internal auditors whose role it is to ensure integrity in the financial records and to evaluate and encourage adherence to the organization s internal controls. Internal auditors are a very effective deterrent to fraud by employees and to the overriding of controls by management. Integrity in the financial reporting process is ensured with independent audits of financial statements by external certified public accountants. Such independent financial statement audits are required for all public companies, and often by creditors and other users. While audits can t guarantee accuracy in the financial statements, they do add credibility.

## THE SECURITIES AND EXCHANGE COMMISSION

**5**

Explain the role of the Securities and Exchange Commission in adding credibility to financial statements.

**Securities and Exchange Commission (SEC)** The government body responsible for regulating the financial reporting practices of most publicly owned corporations in connection with the buying and selling of stocks and bonds.

In addition to the role of independent internal and external auditors, the U.S. government plays a role in ensuring the integrity of financial information. The **Securities and Exchange Commission (SEC)** is responsible for ensuring that investors, creditors, and other financial statement users are provided with reliable information upon which to make investment decisions.

The SEC is an agency of the federal government.[6] The SEC was organized in the 1930s because of financial reporting and stock market abuses. One such abuse was price manipulation. It was not uncommon in the 1920s for stockbrokers or dealers to indulge in wash sales or matched orders, in which successive buy and sell orders created a false impression of stock activity and forced prices up. This maneuver allowed those involved to reap huge profits before the price fell back to its true market level. Outright deceit by issuing false and misleading financial statements was another improper practice. The objective of these manipulative procedures was to make profits at the expense of unwary investors.

One classic example of a major fraud that may have contributed to the formation of the SEC is the Ivar Kreugar case. During the 1920s, the most widely held securities in the United States, and perhaps the world, were the stocks and bonds of **KREUGAR & TOLL, INC.**, a Swedish match company. These securities were popular because they paid high dividends (over 20% annually) and were sold in small denominations, making them attractive to both large and small investors. Ivar Kreugar, known as the Match King, became wealthy and famous as a financial genius, building his business into a multibillion-dollar international enterprise. In fact, Kreugar defrauded millions of investors by personally creating false and misleading financial statements. Instead of being paid out of profits, the dividends were paid out of capital that was raised by selling securities to unsuspecting investors. Eventually, the giant pyramid collapsed, Kreugar committed suicide, and Kreugar & Toll, Inc., went bankrupt. On the day Kreugar died, his company s stock was selling for $5 a share. Within weeks, it was selling for five cents a share. The American public was outraged, and some have speculated that this major fraud was instrumental in causing Congress to enact securities legislation to prevent such deception from happening again.

**f y i**

The first chairman of the SEC was Joseph P. Kennedy, father of the late President John F. Kennedy.

The Securities Act of 1933 requires most companies planning to issue new debt or stock securities to the public to submit a registration statement to the SEC for approval. The SEC examines these statements for completeness and adequacy before permitting companies to sell securities through securities exchanges. The Securities Exchange Act of 1934 requires all public companies to file detailed periodic reports with the SEC.

The SEC requires a considerable amount of information to be included in these filings. Among other things, a company must submit financial statements that have been audited by CPAs and that contain an opinion issued by those CPAs.

Of the many reports required by the SEC, the following have the most direct impact on financial reporting:

*Registration statements.* These include various forms that must be filed and approved before a company can sell securities through the securities exchanges.

*Form 10-K.* This report must be filed annually within 90 days after the close of each fiscal year. The report contains extensive financial information, including audited financial statements by independent CPAs. The 10-K also requires additional disclosure beyond that typically provided in the audited financial statements. Examples of additional information include the executive compensation of top management and the details of property, plant, and equipment transactions.

*Form 10-Q.* This report must be filed quarterly for all publicly held companies. It contains certain financial information and requires a CPA s involvement.

Because the SEC has statutory power to mandate any reporting requirement it feels is needed, it has considerable influence in setting generally accepted accounting principles and disclosure

6 Most of the information on the SEC was taken from K. Fred Skousen, *An Introduction to the SEC,* 5th ed., South-Western Publishing Co., 1991, pp. 3 6.

requirements for financial statements. Generally, the SEC accepts the accounting pronouncements of the Financial Accounting Standards Board and other bodies such as the AICPA. In addition, the SEC has the power to establish rules for any CPA associated with audited financial statements submitted to the commission.

The SEC is given broad enforcement powers under the 1934 Act. If the rules of operation for stock exchanges prove to be ineffectual in implementing the requirements of the SEC, the SEC can alter or supplement them. The SEC can suspend trading of a company s stock for not more than 10 days (a series of orders has enabled the SEC to suspend trading for extended periods, however) and can suspend all trading on any exchange for up to 90 days. If substantive hearings show that the issuer failed to comply with the requirements of the securities laws, the SEC can de-list any security. Brokers and dealers can be prevented, either temporarily or permanently, from working in the securities market, and investigations can be initiated, if deemed necessary, to determine violations of any of the Acts or rules administered by the SEC.

### The Effect of the 1934 Act on Independent Accountants

Accountants are involved in the preparation and review of a major portion of the reports and statements required by the 1934 Act. Accountants also can be censured, and their work is subject to approval by the SEC. The financial statements in the annual report to stockholders and in the 10-K report must be audited. In addition, accountants consult and assist in the preparation of the quarterly 10-Q reports and the other periodic reports.

More recently, the SEC under Chairman Arthur Levitt has initiated a major push to reduce the manipulation of reported earnings by a company s management. In a speech given on September 28, 1998, Mr. Levitt identified several techniques of what he called Accounting Hocus Pocus. The SEC s objective is to prevent the manipulation of earnings and reduce fraudulent financial reporting by limiting the flexibility with which management is currently interpreting certain auditing and accounting standards.

## to summarize

The Securities and Exchange Commission is an agency of the federal government whose purpose is to assist investors in public companies by regulating stock and bond markets and by requiring certain disclosures. Although the SEC has statutory authority to establish accounting principles, it basically accepts pronouncements of the FASB and AICPA as authoritative. Common reports required by the SEC are registration statements and Forms 10-K and 10-Q. Because the SEC can suspend trading and even de-list securities, it is a powerful organization that significantly influences financial reporting in the United States.

## review of learning objectives

**1 Identify the types of problems that can appear in financial statements.** Three types of problems can affect financial statements: (1) Errors involve unintentional mistakes that can enter the accounting system at the transaction and journal entry stage or when journal entries are posted to accounts. These errors, when detected, are immediately fixed. (2) Disagreements in judgment occur because of the differing incentives of those associated with the financial statements. While management may have an incentive to present an optimistic view of the company s performance, auditors have an incentive to ensure full disclosure of all relevant issues. These differing incentives typically result in financial statements that

fairly reflect the financial performance of the company. (3) Fraudulent financial reporting involves intentional misrepresentations in the financial statements. Safeguards are built into the accounting and reporting system to minimize the possibility that these problems will be reflected in the financial statements.

**2 Describe the safeguards employed within a firm to ensure that financial statements are free from problems.** Internal controls are safeguards built into an organization that help to protect assets and increase reliability of the accounting records. The three basic internal control structure categories are (1) the control environment, (2) the accounting systems, and (3) the control procedures. The five types of control procedures are (1) segregation of duties, (2) procedures for authorizations, (3) documents and records, (4) physical safeguards, and (5) independent checks. The control environment is comprised of such things as management s philosophy and operating style, the organizational structure, and the audit committee.

**3 Understand the need for monitoring by independent parties.** Because management has an incentive to portray the performance of the firm as positively as possible, there may be a tendency to be overly optimistic when it comes to making estimates and assessments regarding future events. As a result, there is a need for someone to independently evaluate the projections made by management to ensure that those projections, taken as a whole, result in financial statements that fairly reflect the financial performance of the business.

**4 Describe the role of auditors and how their presence affects the integrity of financial statements.** Most large organizations have internal auditors who are independent internal control experts. They examine the various functions and divisions of the business to evaluate internal controls, operating efficiency and effectiveness, and compliance with laws and company policy. Internal auditors usually report to top management or the board of directors and increase the reliability of financial statements by ensuring that internal controls function as they should.

External audits are required of most public companies by the Securities and Exchange Commission. By conducting audits of financial statements according to generally accepted auditing standards put into effect by the AICPA, external audits provide reasonable assurance that financial statements are presented fairly and are not materially misstated. External audits must be performed by CPAs who are licensed by the individual states in which they practice.

**5 Explain the role of the Securities and Exchange Commission in adding credibility to financial statements.** The SEC is the agency of the federal government charged with the responsibility of assisting investors by making sure they are provided with reliable information upon which to make investment decisions. The SEC was organized in the 1930s and requires certain periodic reports such as the Forms 10-Q and 10-K of companies that sell stock publicly in the United States. It adds credibility to financial statements by requiring independent audits, reviewing financial statements itself, and sanctioning firms that violate its standards.

## key terms and concepts

accounting system 211
audit committee 211
control activities (procedures) 212
control environment 210
external auditors 218
Foreign Corrupt Practices Act (FCPA) 209
generally accepted auditing standards (GAAS) 218
independent checks 214
internal auditors 218
internal control structure 209
organizational structure 210
physical safeguards 213
Securities and Exchange Commission (SEC) 222
segregation of duties 212

## discussion questions

1. How can a person tell whether an entry to an expense account is payment for a legitimate expenditure or a means of concealing a theft of cash?
2. How would it be possible to overstate revenues? What effect would an overstatement of revenues have on total assets?

3. What is the Foreign Corrupt Practices Act, and how is it important to financial reporting?
4. What are the major elements of a system of internal controls?
5. Identify five different types of control procedures.
6. How do internal auditors add to the credibility of financial statements?
7. What is the purpose of a financial statement audit by CPAs?
8. Do you believe that outside auditors (CPAs) who examine the financial statements of a company, while being paid by that company, can be truly independent?
9. The SEC requires companies to register with it when they sell stocks or bonds and also requires periodic reporting thereafter. Which of these reports, the initial registration statements or the subsequent periodic reports, do you believe would be scrutinized more closely by the SEC?
10. What do you suspect is the relationship between the FASB and the SEC?

## discussion cases

### CASE 5-1 AUDITING A COMPANY

Jerry Stillwell, the owner of a small company, asked Jones, a CPA, to conduct an audit of the company s financial statements. Stillwell told Jones that the audit needed to be completed in time to submit audited financial statements to a bank as part of a loan application. Jones immediately accepted the assignment and agreed to provide an auditor s report within two weeks.

Because Jones was busy, he hired two accounting students to perform the audit. After two hours of instruction, he sent them off to conduct the audit. Jones told the students not to spend time reviewing the internal controls, but instead to concentrate on proving the mathematical accuracy of the ledgers and other financial records.

The students followed Jones s instructions, and after 10 days, they provided the financial statements, which did not include notes. Jones reviewed the statements and prepared an auditor s report. The report did not refer to generally accepted accounting principles and contained no mention of any qualifications or disclosures. Briefly describe the problems with this audit.

### CASE 5-2 AUDITING PRACTICE

A few years ago, the owners of an electronics wholesale company committed massive fraud by overstating revenues on the financial statements. They recorded three large fictitious sales near the end of the year to the retailers **SILO**, **CIRCUIT CITY**, and **WAL-MART**. The three transactions overstated revenues, receivables, and income by nearly $20 million. As part of the audit procedures, the external auditors sent requests for confirmation to the three stores to ensure that they did, in fact, owe the electronics company $20 million. In the meantime, the owners of the electronics company rented mailboxes in the cities where the three customers were headquartered, using names very similar to those of the three customers. The requests for confirmation were sent to the mailboxes. The owners completed the confirmations and sent them back to the auditors, confirming the $20 million in receivables. With respect to the fraud, answer the following two questions:

1. What journal entries would the fraud perpetrators have entered into the financial records to overstate revenues?
2. Should the external auditors be held liable for not catching the fraud?

## exercises

### EXERCISE 5-1 ACCOUNTING ERRORS TRANSACTION ERRORS

How would the following errors affect the account balances and the basic accounting equation, *Assets* = *Liabilities* + *Owners Equity*? How do the misstatements affect income?

a. The purchase of a truck is recorded as an expense instead of an asset.
b. A cash payment on accounts receivable is received but not recorded.
c. Fictitious sales on account are recorded.
d. A clerk misreads a handwritten invoice for repairs and records it as $1,500 instead of $1,800.
e. Payment is received on December 31 for the next three months rent and is recorded as revenue.

## EXERCISE 5-2

### ERRORS IN FINANCIAL STATEMENTS

The following financial statements are available for **SHERWOOD REAL ESTATE COMPANY**:

**Balance Sheet**

| Assets | | Liabilities | | |
|---|---|---|---|---|
| Cash | $ 1,300 | Accounts payable | $ 100,000 | |
| Receivable from sale of real estate | 5,000,000 | Mortgage payable | 6,000,000 | |
| Interest receivable* | 180,000 | Total liabilities | | $ 6,100,000 |
| Real estate properties | 6,000,000 | **Stockholders Equity** | | |
| | | Capital stock | $ 10,000 | |
| | | Retained earnings | 5,071,300 | |
| | | Total stockholders equity | | 5,081,300 |
| | | Total liabilities and stockholders equity | | $11,181,300 |
| Total assets | $11,181,300 | | | |

*Interest Receivable applies to Receivable from sale of real estate.

**Income Statement**

| | |
|---|---|
| Gain on sale of real estate | $3,200,000 |
| Interest income* | 180,000 |
| Total revenues | $3,380,000 |
| Expenses | 1,200,000 |
| Net income | $2,180,000 |

*Interest Income applies to Receivable from sale of real estate.

Sherwood Company is using these financial statements to entice investors to buy stock in the company. However, a recent FBI investigation revealed that the sale of real estate was a fabricated transaction with a fictitious company that was recorded to make the financial statements look better. The sales price was $5,000,000 with a zero cash down payment and a $5,000,000 receivable. Prepare financial statements for Sherwood Company showing what its total assets, liabilities, stockholders equity, and income really are with the sale of real estate removed.

## EXERCISE 5-3

### APPROPRIATENESS OF ACCOUNTING RULES

In the early 1990s, the top executive of a large oil refining company (based in New York) was convicted of financial statement fraud. One of the issues in the case involved the way the company accounted for its oil inventories. In particular, the company would purchase crude oil from exploration companies and then process the oil into finished oil products, such as jet fuel, diesel fuel, and so forth. Because there was a ready market for these finished products, as soon as the company purchased the crude oil, it would value its oil inventory at the selling prices of the finished products less the cost to refine the oil. Although the case involved fraud, the type of accounting used was also questioned because it allowed the company to recognize profit before the actual sale (and even refining) of the oil. Nevertheless, one of the large CPA

firms attested to the use of this method. If you were the judge in this case, would you be critical of this accounting practice?

## EXERCISE 5-4 INTERNAL CONTROL PROCEDURES

As an auditor, you have discovered the following problems with the accounting system control procedures of Jefferson Retailers. For each of the following occurrences, tell which of the five internal control procedures was lacking. Also, recommend how the company should change its procedures to avoid the problem in the future.

a. Jefferson Retailers losses due to bad debts have increased dramatically over the past year. In an effort to increase sales, the managers of certain stores have allowed large credit sales to occur without review or approval.
b. An accountant hid his theft of $200 from the company s bank account by changing the monthly reconciliation. He knew the manipulation would not be discovered.
c. Steve Meyer works in the storeroom. He maintains the inventory records, counts the inventory, and has unlimited access to the storeroom. He occasionally steals items of inventory and hides the theft by including the value of the stolen goods in his inventory count.
d. Receiving reports are sometimes filled out days after shipments have arrived.

## EXERCISE 5-5 INTERNAL AUDITING STAFFING INTERNAL AUDITS

A manufacturing corporation recently reassigned one of its accounting managers to the internal audit department. He had successfully directed the western-area accounting office, and the corporation thought his skills would be valuable to the internal audit department. The director of the internal audit division knew of this individual s experience in the western-area accounting office and assigned him to audit that same office.

Should the internal auditor be assigned to audit the same office in which he recently worked? What problems could arise in this situation?

## EXERCISE 5-6 INTERNAL AUDITING

Which of the following is not applicable to the internal audit function?

a. Deter or catch employee fraud.
b. Issue an opinion for investors regarding the reliability of the financial statements.
c. Be guided by its own set of professional standards.
d. Help to ensure that the accounting function is performed correctly and that the financial statements are prepared accurately.

## EXERCISE 5-7 INTERNAL AUDITING EXTERNAL AUDITOR S RELIANCE ON INTERNAL AUDITORS

North, CPA, is planning an audit of the financial statements of General Company. In determining the nature, timing, and extent of the auditing procedures, North is considering General s internal audit function, which is staffed by Tyler.

1. In what ways may Tyler s work be relevant to North?
2. What factors should North consider and what inquiries should North make in deciding whether to rely on Tyler s work?

## EXERCISE 5-8 ENSURING THE INTEGRITY OF FINANCIAL REPORTING

Three college seniors with majors in accounting are discussing alternative career plans. All three want to enter careers that will help to ensure the integrity of financial reporting. The first wants to become an internal auditor. She believes that by ensuring appropriate internal controls within a company, the financial statements will be reliable. The second wants to go to work in public accounting and perform external audits of companies. He believes that external auditors are independent and can make sure that financial statements are correct. The third student believes that neither choice will be adding much value to the integrity of financial statements because, in both cases, the auditors will be receiving their pay (either directly

or indirectly) from the companies they audit. He believes the only way to make a real difference is to work for the Securities and Exchange Commission, using the arm of government regulation to force companies to issue appropriate financial statements and then punishing them (through jail sentences and large fines) when their financial statements are misleading. In your opinion, which of these three students will make the largest contribution toward ensuring integrity in the financial statements?

## EXERCISE 5-9 EXTERNAL AUDITORS PURPOSE OF AN AUDIT

What is the purpose of external auditors providing an opinion on a company s financial statements?

## EXERCISE 5-10 AUDITING FINANCIAL STATEMENTS

The Utah Lakers professional basketball team has recently decided to sell stock and become a public company. In determining what it must do to file a registration statement with the SEC, the company realizes that it needs to have an audit opinion to accompany its financial statements. The company has recently approached two accounting students at a major university and asked them to audit its financial statements to be submitted to the SEC. Should the two accounting students accept the work and perform the audit?

## EXERCISE 5-11 SECURITIES AND EXCHANGE COMMISSION AUTHORITY TO SET ACCOUNTING STANDARDS

Which organization the Securities and Exchange Commission, the American Institute of Certified Public Accountants, or the Financial Accounting Standards Board has federal government authority to set accounting standards and reporting requirements? Some people have argued that all accounting rule making should be done by the federal government. Do you agree? Why or why not?

## EXERCISE 5-12 SECURITIES AND EXCHANGE COMMISSION ROLE OF THE SEC

Describe the role of the Securities and Exchange Commission and its influence on the practice of auditing.

## EXERCISE 5-13 SECURITIES AND EXCHANGE COMMISSION INFORMATION NEEDED FOR INVESTING

As an investor you are considering buying stock in a relatively new company. American Shipping, Ltd., has been in existence for 10 years and is now about to go public. The first stock offering will be listed on the New York Stock Exchange next week.

1. What kind of information would you like to know before investing in the company? Where can you find this information?
2. How does the SEC protect the securities market from companies that are fraudulent or in poor financial condition?
3. Besides stock market investors, what other parties might be interested in knowing financial data about companies?

## EXERCISE 5-14 AUDITING NEGLIGENCE

A few years ago, the officers of **PHAR-MOR**, a discount retail chain, were convicted of issuing fraudulent financial statements. It was learned at the trial that the company overstated its inventory by moving inventory from store to store and counting the same inventory several times. For example, a case of Coca-Cola would be counted at one store and then moved to another store and counted again. In a separate civil trial, Phar-Mor s auditors were accused of performing negligent audits because they didn t catch these inventory movements. Do you believe that the external auditors were negligent in this case?

## EXERCISE 5-15 SECURITIES AND EXCHANGE COMMISSION

Many people have argued that the purpose of the SEC is to protect investors. Some believe that the best way to do this is by preventing weak companies from issuing stock. Others say that the SEC should require full disclosure and then let the buyer beware. Which do you think is more appropriate: a preventive role or a disclosure role?

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***Analyzing 5-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** is included in Appendix A. Locate that annual report and consider the following questions:

1. With respect to the report of the external auditors to the Board of Directors and Stockholders of Microsoft Corporation :
   a. Who is Microsoft s external auditor?
   b. How long after the end of Microsoft s fiscal year did the external auditor complete the audit?
2. With respect to the report of management concerning the financial statements:
   a. Who is responsible for the financial statements?
   b. After reading the paragraph on internal control, indicate whether you agree or disagree with the following statement: The purpose of an internal control system is to ensure that all transactions are always recorded and that all assets are always completely safeguarded.
   c. After looking at the description of the members of the audit committee, do you think that Bill Gates is a member of that committee?

***Analyzing 5-2 (Circle K)***

At one time, **CIRCLE K** was the second-largest convenience store chain in the United States (behind **7-ELEVEN**). At its peak, Circle K, based in Phoenix, Arizona, operated 4,685 stores in 32 states. Circle K s rapid expansion was financed through long-term borrowing. Interest on this large debt, combined with increased price competition from convenience stores operated by oil companies, squeezed the profits of Circle K. For the fiscal year ended April 30, 1990, Circle K reported a loss of $773 million. In May 1990, Circle K filed for Chapter 11 bankruptcy protection. Subsequently, Circle K was taken over by **TOSCO**, a large independent oil company.

1. In the fiscal year ended April 30, 1989, Circle K experienced significant financial difficulty. Reported profits were down 74.5% from the year before. In the president s letter to the shareholders, Circle K explained that 1989 was a disappointing year and that management was seeking some outside company to come in and buy out the Circle K shareholders. How do you think all this bad news was reflected in the auditor s report accompanying the financial statements dated April 30, 1989?

2. As mentioned, Circle K reported a loss of $773 million for the year ended April 30, 1990. Just a week after the end of the fiscal year, the CEO was fired. One week after that, Circle K declared bankruptcy. The audit report was completed approximately two months later. How do you think the news of the bankruptcy was reflected in the auditor s report accompanying the financial statements dated April 30, 1990?

## INTERNATIONAL CASE

***Do the Financial Statements Give a True and Fair View?***

**SWIRE PACIFIC, LTD.**, based in Hong Kong, is one of the largest companies in the world. The primary operations of the company are in the region of Hong Kong, China, and Taiwan where it has operated for over 125 years. Swire operates **CATHAY PACIFIC AIRWAYS** and has extensive real estate holdings in Hong Kong. The 1996 auditor s report (prepared by **PRICE WATERHOUSE**) for Swire Pacific, dated March 14, 1997, read as follows (in part):

> An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures in the accounts. It also includes an assessment of the significant estimates and judgments made by the directors in the preparation of the accounts, and of whether the accounting policies are appropriate to the Company s and the Group s circumstances, consistently applied and adequately disclosed. . . .
>
> In our opinion the accounts give a true and fair view, in all material respects, of the state of affairs of the Company and the Group as at 31st December 1996. . . .

Although the concept of a true and fair view is not part of the auditor s terminology in the United States, it is used by auditors all over the world and is also discussed as part of International Accounting Standards (IAS). The true and fair view concept states that an auditor must make sure that the financial statements give an honest representation of the economic status of the company, even if the company violates generally accepted accounting principles in order to do so.

1. Review the opinion language in the auditor s report for **MICROSOFT** (see Appendix A). Does the audit report state unconditionally that Microsoft s financial statements are a fair representation of the economic status of the company?
2. Auditors in the United States concentrate on performing audits to ensure that financial statements are prepared in accordance with generally accepted accounting principles. What economic and legal realities in the United States would make it difficult for U.S. auditors to apply the true and fair view concept?

## ETHICS CASE

***Blowing the Whistle on Former Partners***

On St. Patrick s Day in 1992, **CHAMBERS DEVELOPMENT COMPANY**, one of the largest landfill and waste management firms in the United States, announced that it had been engaging in improper accounting for years. Wall Street fear (over what this announcement implied about the company s track record of steady earnings growth) sent Chambers stock price plunging by 62% in one day.

The improper accounting by Chambers had been discovered in the course of the external audit. The auditors found that $362 million in expenses had not been reported since Chambers first became a public company in 1985. If this amount of additional expense had been reported, it would have completely wiped out all the profit reported by Chambers since it first went public. The difficult part of this situation was that a large number of the financial staff working for Chambers were former partners in the audit firm performing the audit. These accountants had first worked as independent external auditors at Chambers, then were hired by Chambers, and subsequently were audited by their old partners.

What ethical and economic issues did the auditors of Chambers Development Company face as they considered whether to blow the whistle on their former partners?

## WRITING ASSIGNMENT

***External Auditors***

Visit or call a local CPA firm (or the local office of a multi-office CPA firm). Ask about career opportunities, the size of the firm s staff, who some of its major clients are, and other facts about the firm. Then, write a one-page summary of your visit.

## THE DEBATE

***Who Needs Internal Control?***

An internal control system is intended to ensure that all transactions are properly approved and recorded, that assets and records are safeguarded, and that operations run efficiently. As with any other system in a business, an internal control system costs money to operate.

Divide your group into two teams.

One team represents the Hire Honest and Smart group. Prepare a two-minute oral presentation supporting the notion that if a company would focus on hiring only honest and smart employees, it would not need to spend money designing and operating an internal control system. Most of the functions of internal control are to prevent employees from stealing and to make it difficult for inept employees to commit costly mistakes.

The other team represents the No Trust group. Prepare a two-minute oral presentation arguing that a company must set up a careful internal control system because, given the right opportunity and motive, any employee can turn into a thief. In addition, a company cannot rely on the good intentions of employees to keep the business running smoothly. Instead, top management must design systems that will keep things running smoothly in spite of the mistakes of employees.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignment given in Chapter 2. If you completed that spreadsheet, you have a head start on this one.

1. Refer back to the financial statement numbers for Handyman Company for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2]. Using the balance sheet and income statement created with those numbers, create spreadsheet cell formulas to compute and display values for the following ratios:

a. Current ratio
b. Debt ratio
c. Asset turnover
d. Return on equity

2. To observe the impact that errors and fraudulent transactions can have on the financial statements, determine what the ratios computed in (1) would have been if (1) each of the following transactions was recorded as described and (2) the transaction was recorded correctly. Treat each transaction independently, meaning that before determining the impact of each new transaction you should reset the financial statement values to their original amounts. Each of the hypothetical transactions is assumed to occur on the last day of the year.
   a. Created receivables by creating fictitious sales of $140 all on account.
   b. Purchased $80 of inventory on account but incorrectly increased the property, plant, and equipment account instead of increasing Inventory.
   c. Borrowed $60 with a short-term payable. The liability was incorrectly recorded as Long-Term Debt.
   d. An inventory purchase on account in the amount of $90 was not recorded until the next year.

## INTERNET SEARCH

***Phar-Mor***

Access the Web site of **PHAR-MOR** at **http://www.pharmor.com**. Sometimes Web addresses change, so if this address doesn t work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link.

Once you ve gained access to the site, answer the following questions:

1. When was Phar-Mor founded? How many stores does the company have today? In how many states is the company doing business?
2. Locate Phar-Mor s most recent press release. What is the topic of the press release?
3. Review Phar-Mor s annual report to determine any lingering effects of the fraud that was revealed by the company in 1992.
4. Evaluate Phar-Mor s current financial position as compared to 1999.

# comprehensive problem 15

As a recently hired accountant for a small business, SMC, Inc., you are provided with last year s balance sheet, income statement, and post-closing trial balance to familiarize yourself with the business.

**SMC, Inc.**
**Balance Sheet**
**December 31, 2002**

| | | |
|---|---|---|
| **Assets** | | |
| Cash | $34,500 | |
| Accounts receivable | 25,000 | |
| Inventory | 10,000 | |
| Supplies | 200 | |
| Total assets | | $69,700 |
| **Liabilities and Stockholders Equity** | | |
| *Liabilities:* | | |
| Accounts payable | $12,000 | |
| Salaries payable | 1,000 | |
| Income taxes payable | 3,675 | |
| Total liabilities | | $16,675 |
| *Stockholders equity:* | | |
| Capital stock (10,000 shares outstanding) | $25,000 | |
| Retained earnings | 28,025 | |
| Total stockholders equity | | 53,025 |
| Total liabilities and stockholders equity | | $69,700 |

**SMC, Inc.**
**Income Statement**
**For the Year Ended December 31, 2002**

| | | |
|---|---|---|
| Sales revenue | $110,000 | |
| Rent revenue | 1,000 | |
| Total revenues | | $111,000 |
| Less cost of goods sold | | 60,000 |
| Gross margin | | $ 51,000 |
| Less operating expenses: | | |
| Supplies expense | $ 400 | |
| Salaries expense | 22,000 | |
| Miscellaneous expense | 4,100 | 26,500 |
| Income before taxes | | $ 24,500 |
| Less income taxes | | 3,675 |
| Net income | | $ 20,825 |
| Earnings per share ($20,825 ÷ 10,000 shares) | | $ 2.08 |

**SMC, Inc.**
**Post-Closing Trial Balance**
**December 31, 2002**

| | Debits | Credits |
|---|---|---|
| Cash | $34,500 | |
| Accounts Receivable | 25,000 | |
| Inventory | 10,000 | |
| Supplies | 200 | |
| Accounts Payable | | $12,000 |
| Salaries Payable | | 1,000 |
| Income Taxes Payable | | 3,675 |
| Capital Stock | | 25,000 |
| Retained Earnings | | 28,025 |
| Totals | $69,700 | $69,700 |

You are also given the following information that summarizes the business activity for the current year, 2003.

a. Issued 5,000 additional shares of capital stock for $10,000 cash.
b. Borrowed $5,000 on January 2, 2003, from Downtown Bank as a long-term loan. Interest for the year is $500, payable on January 2, 2004.
c. Paid $3,600 cash on November 1 to lease a truck for one year.
d. Received $1,200 on November 1 from a tenant for six months rent.
e. Paid $600 on October 1 for a one-year insurance policy.
f. Purchased $500 of supplies for cash.
g. Purchased inventory for $100,000 on account.
h. Sold inventory for $150,000 on account; cost of the merchandise sold was $80,000.
i. Collected $120,000 cash from customers accounts receivable.
j. Paid $70,000 cash for inventories purchased during the year.
k. Paid $25,000 for sales reps salaries, including $1,000 owed at the beginning of 2003.
l. No dividends were paid during the year.
m. The income taxes payable for the year were paid. Income taxes are based on a 15% corporate tax rate.
n. For adjusting entries, all prepaid expenses are initially recorded as assets, and all unearned revenues are initially recorded as liabilities.
o. At year-end, $150 worth of supplies are on hand.
p. At year-end, an additional $5,000 of sales salaries are owed, but have not yet been paid.

You are asked to do the following:

1. Journalize the transactions for the current year, 2003, using the accounts listed on the financial statements and other appropriate accounts (you may omit explanations).
2. Set up T-accounts and enter the beginning balances from the December 31, 2002, post-closing trial balance for SMC. Post all current year journal entries to the T-accounts.
3. Journalize and post any necessary adjusting entries at the end of 2003. (Hint: Items b, c, d, e, m, o, and p require adjustment.)
4. After the adjusting entries are posted, prepare a trial balance, a balance sheet, and an income statement for 2003. (Hint: Income before income taxes should equal $39,600.)
5. Journalize and post closing entries for 2003 and prepare a post-closing trial balance.
6. Using the DuPont framework, compute the return on equity for SMC for 2002 and 2003.
7. **Interpretive Question:** What is your overall assessment of the financial health of SMC, Inc.?

# Selling a Product or a Service

chapter

6

## learning objectives

After studying this chapter, you should be able to:

1. Understand the three basic types of business activities: operating, investing, and financing.
2. Use the two revenue recognition criteria to decide when the revenue from a sale or service should be recorded in the accounting records.
3. Properly account for the collection of cash and describe the business controls necessary to safeguard cash.
4. Record the losses resulting from credit customers who do not pay their bills.
5. Evaluate a company s management of its receivables by computing and analyzing appropriate financial ratios.
6. Match revenues and expenses by estimating and recording future warranty and service costs associated with a sale.

expanded material

7. Reconcile a checking account.
8. Understand how receivables can be used by a company to get cash immediately.
9. Account for the impact of changing exchange rates on the value of accounts receivable denominated in foreign currencies.

Jerry Yang was born in Taiwan in 1968. His father died when he was just two, so Jerry and his brother were raised by their mother, an English professor at a university in Taipei. Jerry s mother moved the family to San Jose, California, in 1978. In spite of what he calls a very short attention span, Jerry was an excellent student he was valedictorian of his high school class, and he completed his bachelor s and master s degrees in electrical engineering at Stanford University in a total of just four years.[1]

David Filo was born in Wisconsin in 1966. He describes his parents as hippie wannabes, who moved their family to Moss Bluff, Louisiana, to join a commune. David eventually left the commune to attend Tulane University where he studied computer engineering. David then went to Stanford as a graduate student, working part-time as a teaching assistant. As luck would have it, one of his students was Jerry Yang. Jerry and David s friendship was strengthened when they both went on a six-month academic exchange program to Japan in 1992.

In 1993, Jerry and David were supposed to be working on their Ph.D. theses in computer-aided design at Stanford. Instead, they found themselves spending more and more research time surfing through the incredible amount of information available on the newly created World Wide Web. Their first project was to write software that scanned the Web for NBA player statistics. The first Web site that Jerry designed was dedicated to another of his sports passions sumo wrestling.

Jerry and David quickly learned that the key to surfing the vast quantities of information on the Web was to be able to organize the information. They compiled a list of their favorite Web sites, which they e-mailed to friends and posted on the Web under the title Jerry s Guide to the World Wide Web. This title was a bit unwieldy, so they came up with the shorthand title **YAHOO!** Jerry and David liked the irreverent, lively tone of the name; they then went back and developed a formal title to fit the Yahoo! acronym: Yet Another Hierarchical Officious Oracle.

By 1994, thousands were using Yahoo! to access information on the Web. In fact, the demand was so great that Jerry and David were spending 20-plus hours a day on their hobby. In addition, the resources of the Stanford computer network were being taxed by Yahoo! users, and university officials asked Jerry and David to find another computer to host their service. Interest in hosting the Yahoo! service was high, and representatives from **MCI WORLDCOM**, **AOL**, and **NETSCAPE** visited Jerry and David in their disheveled 10-by-10-foot work space in a trailer on the Stanford campus. Jerry and David accepted Netscape s offer of help, and the Yahoo! service moved over to the Netscape computer network in 1995.

**f y i**

Jonathan Swift coined the word *yahoo* in his book *Gulliver s Travels*. The yahoos were savage humans who lived in a land where horses were the dominant species. Swift, a noted satirist, used the term *yahoo* to illustrate how easy it is to justify committing atrocities against people once they are categorized with an unfavorable label.

In March 1995, Jerry and David were finally convinced that their Web search hobby could actually be turned into a business. They accepted a $4 million investment from **SEQUOIA**, a venture capital firm. Realizing that they lacked business expertise, they chose Tim Koogle, another Stanford graduate who was running a $400 million high-tech equipment company, to join them in running their company. In essence, Jerry and David hired Koogle to be their boss. In Yahoo! s organizational hierarchy, Koogle bears the title of chief executive officer (CEO), and Jerry and David are officially titled the Chief Yahoos. This team has turned Yahoo! into the most recognized name among Internet companies. As of June 2000, Yahoo! had a total market value of $76 billion.

So, how does Yahoo! make money? Throughout its history, Yahoo! has generated almost all of its revenue through the sale of advertising space on its Web pages. For example, in 1999, 90.4% of Yahoo! s $588.6 million in revenue was generated through advertising. Yahoo! s advertising fees are described as follows in the company s 1998 annual report:

> The Company s standard rates for banner advertising currently range from approximately $6.00 per thousand impressions for run of network [general advertising] to approxi-

setting the stage

1 The Yahoo! background material was obtained from the following sources: Beverly Schuch, Yang and Filo: Chief Yahoos! *CNN Pinnacle*, November 14, 1999, Transcript #99111400V39; and Brent Schlender, How a Virtuoso Plays the Web, *Fortune*, March 6, 2000, p. F-79.

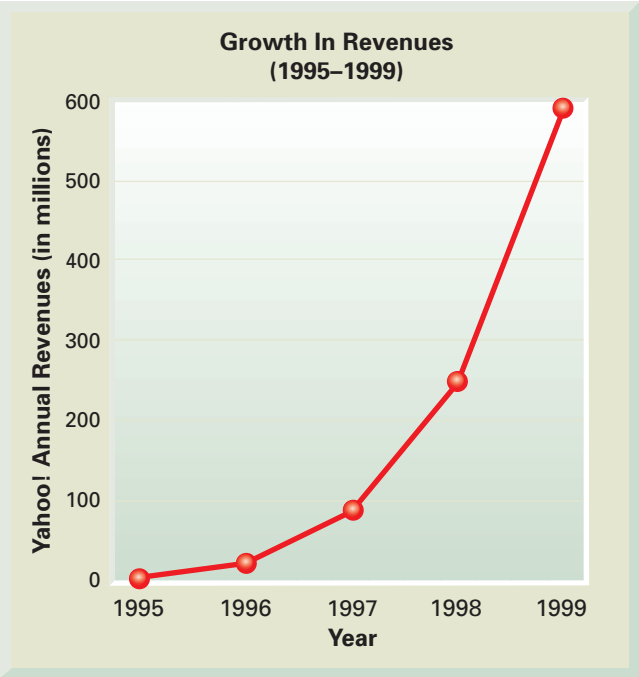
mately $90.00 per thousand impressions for highly targeted audiences and properties.

The key factor in generating this advertising revenue is maintaining high traffic through its Web sites. In March 2000, Yahoo! s traffic averaged 625 million page views per day, originating from a pool of 145 million different Yahoo! users worldwide. Yahoo! s growth in annual revenues from 1995 through 1999 averaged 353% per year, as illustrated in Exhibit 6-1. The challenge facing Yahoo! is to expand its revenue base from advertising into the exploding realm of e-commerce. For example, Yahoo! plans to significantly increase the amount of revenue it generates through commissions on e-commerce transactions facilitated through services such as Yahoo! Shopping and Yahoo! Auctions.

*For Internet companies such as Yahoo!, investors are extremely interested in the amount of revenue reported in the income statement. In fact, in the gold rush of e-commerce, investors are more concerned about how much e-business a company is doing than about whether the company is able to generate immediate profits. The amount of revenue reported by an Internet company is a key indicator of how large the company is in the Internet economy. For example, as of 1999,* ***AMAZON.COM*** *had never reported a profit (revenue minus expenses) in its history; the company lost $720 million in 1999 alone. Yet, because of the $1.6 billion in revenue it reported in 1999, Amazon.com is viewed as a major player in the burgeoning Internet economy. As a result, Amazon.com had a market value of $16.4 billion in May 2000.*

*The amount of revenue reported by traditional companies, such as* ***GENERAL MOTORS****,* ***WAL-MART****, and* ***GENERAL ELECTRIC****, is also of interest to investors because increased revenues almost always lead to increased profits. Consequently, there is sometimes great pressure on companies to report as much revenue as possible. To balance this pressure, accounting rules have been established to govern exactly when it is appropriate for a company to report the revenue from a transaction in the income statement. These accounting rules are not just conceptual toys for accountants; investor*

**exhibit 6-1** Growth in Yahoo! Revenue: 1995 1999



*concern about whether* ***MICROSTRATEGY****, a software company, was correctly applying the accounting rules associated with revenue caused the company s stock price to drop from $333 per share on March 10, 2000, to $22.25 per share just 10 weeks later.*[2]

*In this chapter, you will study the accounting rules governing the proper recognition of revenue. You will also learn how to account for cash collections and how to handle customer accounts that are uncollectible. Selling goods and services, collecting the cash, and handling customer accounts are fundamental to the operation of any business. Accordingly, properly recording these activities is fundamental to the practice of accounting.*

## 1 MAJOR ACTIVITIES OF A BUSINESS

Understand the three basic types of business activities: operating, investing, and financing.

In the first five chapters, you were introduced to the accounting environment, the basic financial statements, and the accounting cycle (the way business transactions are entered into the accounting records). That material was necessary for you to understand some basic terminology and procedures used in accounting. Accounting has often been called the language of business. By studying the first five chapters, you should now be somewhat familiar with this new business language.

With the basics behind us, it is now time to use accounting to understand how businesses work, how the various activities of business are accounted for, and how businesses report their operating results to investors. The activities of most businesses can be divided into three groups:

Operating activities
Investing activities
Financing activities

**operating activities** Transactions and events that involve selling products or services and incurring the necessary expenses associated with the primary activities of the business.

**Operating activities** involve selling products or services, buying inventory for resale, and incurring and paying for necessary expenses associated with the primary activities of the business. The operating activities of a motel, for example, would include renting rooms (the selling activity); buying soap, shampoo, and other supplies to operate the motel; and incurring and paying for electricity, heat, water, cleaning, television and telephone service, and salaries and taxes of workers. The operating activities of a grocery store would include buying produce, meats, canned goods, and other items for resale; selling products to customers; and incurring and paying for expenses associated with the store s operations such as utilities, salaries, and taxes. The operating activities of **YAHOO!** include selling advertising space on the company s Web pages, paying employees to maintain the Yahoo! system and to develop new software, and paying to advertise the Yahoo! brand name on TV and in magazines. It is easy to identify operating activities because they are always associated with the primary purpose of a business.

A motel deals with operating activities on a daily basis when renting rooms, buying supplies, and paying utility expenses.

In this chapter we cover the operating activities for selling products and services, the recognition of revenues from those sales, accounting for cash, and problems associated with collecting receivables arising from sales. In Chapter 7 we examine the purchase of inventory for resale to customers and the necessary accounting procedures. In Chapter 8 we conclude our discussion of operating activities by considering other operating expenses and how revenues and expenses are combined to compute the net income of a business. Incurring and paying for operating expenses such

2 Michael Schroeder, SEC Widens MicroStrategy Investigation, *The Wall Street Journal*, May 24, 2000, p. C1.

as employee compensation, insurance, advertising, research and development, and income taxes are also covered in Chapter 8.

**investing activities** Transactions and events that involve the purchase and sale of property, plant, equipment, and other assets not generally held for resale.

**Investing activities** involve the purchase of assets for use in the business. The assets purchased as part of investing activities include property, plant, and equipment, as well as financial assets such as investments in stocks and bonds of other companies. Investing activities are distinguishable from operating activities because they occur less frequently and the amounts involved in each transaction are usually quite large. For example, while most businesses buy and sell inventory or services to customers on a daily basis (operating activities), only rarely do they buy and sell buildings, equipment, and stocks and bonds of other companies. It is important to note that buying inventory for resale is an operating activity, not an investing activity. Investing activities are covered in Chapters 9 and 12.

**financing activities** Transactions and events whereby resources are obtained from, or repaid to, owners (equity financing) and creditors (debt financing).

**Financing activities** involve raising money to finance a business by means other than operations. In addition to earning money through profitable operations, there are two other ways to fund a business: (1) money can be borrowed from creditors (debt financing), or (2) money can be raised by selling stock or ownership interests in the business to investors (equity financing). Debt financing is the subject of Chapter 10, while equity financing will be discussed in Chapter 11.

Once you have studied Chapters 6 through 12, you will have a good understanding of how businesses operate, invest, and are financed. That knowledge should be helpful in the future if you own your own business, invest in companies as a stockholder, work for a financial institution (or other lender of funds), or work in any position where a knowledge of business is essential.

After studying the operating, investing, and financing activities of a business, you will be ready to combine your knowledge of how businesses operate with the basic accounting knowledge you gained from Chapters 1 through 5. To do this, we will study in detail the statement of cash flows, which is structured around the three activities of a business (Chapter 13). You will discover that preparation of a statement of cash flows requires a sound understanding of the balance sheet and the income statement, as well as a good grasp of how the activities of a business tie together. Exhibit 6-2 provides a graphical road map of the business and reporting activities that will be discussed in the subsequent eight chapters.

Although Chapters 6 through 12 are organized around business activities, it is important to understand how these activities relate to the basic financial statements. To help you understand these relationships, at the beginning of each of the next seven chapters, we present basic financial statements that highlight the accounts that will be covered in that chapter. As you can

**exhibit 6-2** Major Activities of a Business

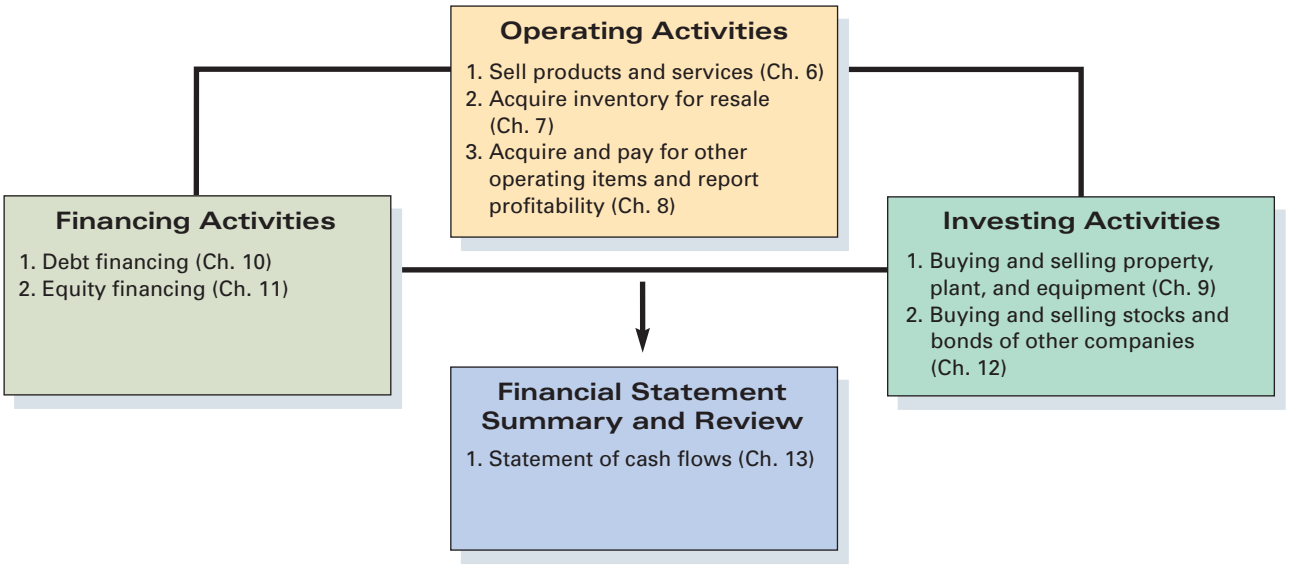
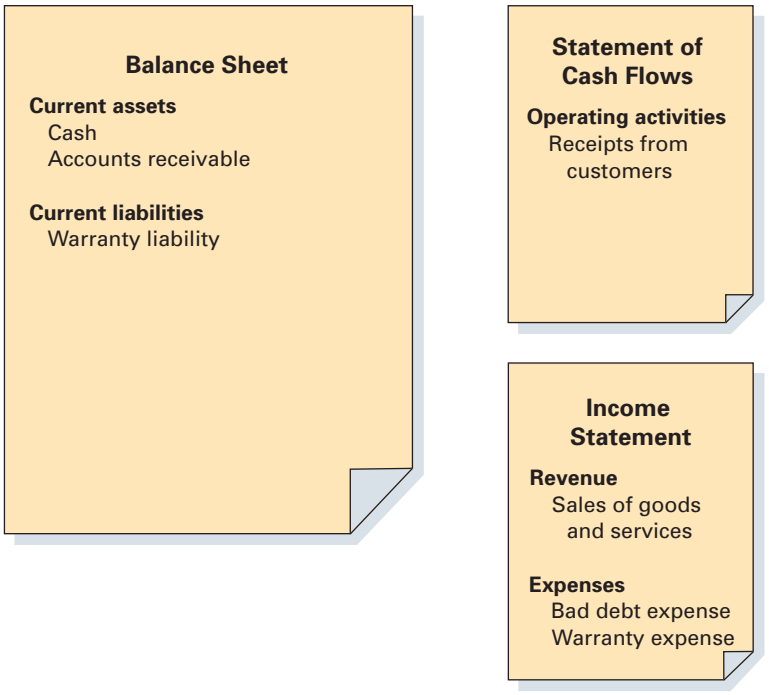


exhibit 6-3 Financial Statement Items Covered in This Chapter




see in Exhibit 6-3, Cash, Accounts Receivable, and Warranty Liability on the balance sheet; Sales, Bad Debt Expense, and Warranty Expense on the income statement; and Receipts from Customers on the statement of cash flows are covered in Chapter 6.

## to summarize

Activities of a business can be divided into (1) operating activities, (2) investing activities, and (3) financing activities. Operating activities involve selling products or services, buying inventory for resale, and incurring and paying for necessary expenses associated with the primary activities of a business. Investing activities include purchasing assets for use in the business and making investments in such items as stocks and bonds. Financing activities include raising money to finance a business by means other than operations.

**2**

Use the two revenue recognition criteria to decide when the revenue from a sale or service should be recorded in the accounting records.

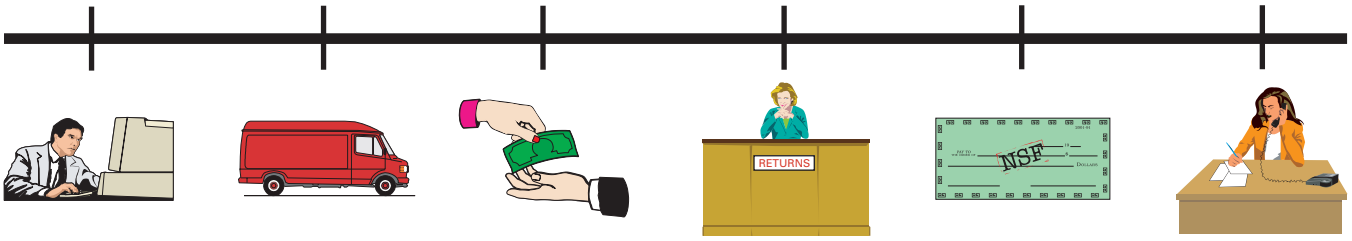
## RECOGNIZING REVENUE

The operations of a business revolve around the sale of a product or a service. **MCDONALD S** sells fast food; **MICROSOFT** sells software and continuing customer support; **BANK OF AMERICA** loans money and sells financial services; **YAHOO!** sells advertising space on its Web pages. Just as the sale of a product or service is at the heart of any business, proper recording of the revenue from sales and services is fundamental to the practice of accounting. A simple time line illustrating the business issues involved with a sale is given in Exhibit 6-4.

Consideration of this time line raises a number of very interesting accounting questions:

When should revenue be recognized when the initial order is placed, when the good or service is provided, when the cash is collected, or later, when there is no longer any chance that the customer will return the product or demand a refund because of faulty service?

exhibit 6-4 Time Line of Business Issues Involved with a Sale




| ACCEPT | DELIVER | COLLECT | ACCEPT | STRUGGLE | PROVIDE |
|---|---|---|---|---|---|
| an order | a product or a service | cash | returned products | with nonpaying customers | continuing service |

What accounting procedures are used to manage and safeguard cash as it is collected?
How do you account for bad debts, that is, customers who don t pay their bills?
How do you account for the possibility that sales this year may obligate you to make warranty repairs and provide continuing customer service for many years to come?

The following sections will address these accounting issues, beginning with the important question of when to recognize revenue.

## When Should Revenue Be Recognized?

**revenue recognition** The process of recording revenue in the accounting records; occurs after (1) the work has been substantially completed and (2) cash collection is reasonably assured.

**Revenue recognition** is the phrase that accountants use to refer to the recording of a sale through a journal entry in the formal accounting records. Revenue is usually recognized when two important criteria have been met:

1. The work has been substantially completed (the company has done something), and
2. Cash, or a valid promise of future payment, has been received (the company has received something in return).

As a practical matter, most companies record sales when goods are shipped to customers. Credit sales are recognized as revenues before cash is collected, and revenue from services is usually recognized when the service is performed, not necessarily when cash is received.

**fyi**

In the majority of companies, the most frequent types of journal entries are those to record sales, cash collections, purchases, and payments to suppliers. Because such transactions are so frequent, most firms maintain four separate special journals: (1) the sales journal, (2) the purchases journal, (3) the cash receipts journal, and (4) the cash disbursements journal. These journals were noted in Appendix B (Special Journals) at the end of Chapter 4.

To illustrate, we will assume that on a typical business day Farm Land Products sells 30 sacks of fertilizer for cash and 20 sacks on credit, all at $10 per sack. Given these data, the $500 of revenue is recorded as follows:

| | | |
|---|---|---|
| Cash | 300 | |
| Accounts Receivable | 200 | |
| Sales Revenue | | 500 |
| *Sold 30 sacks of fertilizer for cash and 20 sacks on credit.* | | |

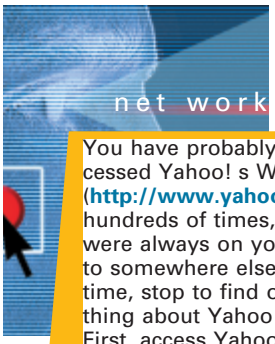
Although the debit entries are made to different accounts, the credit entry for the full amount is to a revenue account. Thus, accrual-basis accounting requires the recognition of $500 in revenue instead of the $300 that would be recognized if the focus were merely on cash collection.

This example is a simple illustration of how sales are recorded and revenue is recognized. In reality, sales transactions are usually more complex, involving such things as uncertainty about exactly when the transaction is actually completed and whether a valid promise of payment has actually been received from the customer. These difficulties are compounded by the fact that companies often have an understandable de-

sire to report revenue as soon as possible in order to enhance their reported performance and make it easier to get loans or attract investors. The discussion below will further examine the two revenue recognition criteria (work done and cash collectible) to see how accountants apply these rules to ensure that reported revenue fairly reflects the economic performance of a business.

## Application of the Revenue Recognition Criteria

The Farm Land example was used to illustrate a straightforward case of revenue recognition at the time a sale is made. The Farm Land customers bought $500 worth of fertilizer, paying $300 cash and promising to pay $200 later; the $500 of revenue was recognized immediately. But what if the terms of the sale had also required Farm Land to deliver the fertilizer to the customers at no extra charge? In this case, proper application of the work done revenue recognition criterion would require that the revenue not be recorded until actual delivery had taken place. Alternatively, assume that the fertilizer sale was accompanied by a guarantee that, within 30 days, customers could return the unused portion of fertilizer for a full refund. If very few customers ever seek a refund, revenue should still be recognized at the time of sale. But, for example, if over 70% of fertilizer customers later seek refunds, the cash collectible revenue recognition criterion suggests that no revenue should be recognized until the completion of the 30-day return period; Farm Land then becomes reasonably assured of the amount of cash it will collect from the $500 in sales. This situation illustrates the need for accountants to exercise professional judgment and account for the economic reality of a transaction instead of blindly relying on technical legal rules about whether a sale has taken place. Other examples of the application of the revenue recognition criteria are given below.




You have probably accessed Yahoo! s Web site (**http://www.yahoo.com**) hundreds of times, but you were always on your way to somewhere else. This time, stop to find out something about Yahoo! itself. First, access Yahoo! s company press release file to find out how much revenue Yahoo! reported in the most recent fiscal year. Then, use Yahoo! s stock quote search engine to find out Yahoo! s current market value (ticker symbol: YHOO). Comment on the relationship between reported revenue and current market value.

**YAHOO!** As mentioned in the opening scenario of this chapter, Yahoo! derives most of its revenue from the sale of banner advertising space on its Web pages. In 1998, Yahoo! s standard rates ranged from 0.6 cents per impression (the appearance of an advertisement on a page viewed by a user) for general markets to 9 cents per impression for more focused markets. In general, Yahoo! recognizes advertising revenue as the impressions occur. This revenue recognition practice makes sense if Yahoo! is reasonably certain of collecting payment for these impressions because Yahoo! has completed its work of providing the impressions. Yahoo! often guarantees an advertiser a minimum number of impressions. To the extent that the minimum guaranteed impressions are not met as of the date the financial statements are prepared, Yahoo! delays recognizing the advertising revenue until the guaranteed number of impressions is reached.

As you might expect, not all software companies support this revenue recognition practice; they would prefer to recognize all of the revenue from a software sale immediately at the time of the sale. Microsoft, on the other hand, has been very supportive of the rule. Why do you think Microsoft supports the accounting rule that many other software firms oppose?

**MICROSOFT** The nature of the computer software industry presents several sticky revenue recognition issues. The installation of software and the promise of software upgrades require software companies to consider when the earnings process is substantially complete. Are the revenue recognition criteria satisfied at the point of sale, when the software is installed, or after promised upgrades are delivered? Microsoft recognizes a portion (80% for the Office 97 software) of the software price as revenue immediately upon delivery of the software to you. The rest of the software price is recognized as revenue gradually over time as the technical support service is provided.

**BOEING** **BOEING** recognizes revenue from commercial aircraft sales at the time the aircraft is delivered to the airline. For example, in 1999 Boeing recognized revenue from the delivery of 620 commercial aircraft, including 320 737s. In contrast, many of Boeing s government contracts require years of work before any product is delivered. If Boeing did not recognize any revenue during this extended production period, its economic activity for that period would be understated. Thus, the accounting rules allow Boeing to recognize revenue piecemeal as it reaches scheduled performance milestones. This type of pro-

## business environment essay

**Worried about Revenues!** Today the tobacco industry faces an unprecedented antismoking onslaught. An increasing number of lawsuits are alleging that smoking, and even secondhand smoke, causes cancer and other diseases and that the tobacco companies are at fault because their sales practices get people hooked on addictive drugs. (By the way, if you wish to read a careful assessment of the health risks associated with cigarettes, read the financial reports of the tobacco companies. By federal law, these reports must be provided to all interested investors, and, to ensure that investors are not misled, the Securities and Exchange Commission monitors these disclosures to make sure that they are not overly optimistic. Accordingly, these financial statement disclosures contain a much more evenhanded view than do most public statements on this controversial issue.) Although they are very large and extremely profitable, the tobacco companies are worried about future revenues. They are concerned that antismoking activity will result in fewer smokers and fewer sales. As a result, the big tobacco companies have been diversifying into other businesses, so that now a significant amount of their revenues comes from nontobacco sales. For example, two large tobacco companies now own the following:

portional performance technique is commonly used to recognize revenue from transactions that extend over a long time period, such as for highway construction projects or season tickets for a professional sports team.

**RENT-A-CENTER** RENT-A-CENTER operates 2,440 rent-to-own stores in the United States under both its own name and the name ColorTyme. Customers rent furniture, VCRs, and other consumer goods under an agreement giving them ownership of the item if they continue to make their payments for the entire rental period. Rent-to-own stores attract customers who cannot afford the outright purchase of consumer goods and who anticipate difficulty in receiving credit through normal channels. Thus, a big concern for Rent-A-Center is collecting the full amount of cash due under a rental contract. In fact, Rent-A-Center states that only about 25% of its customers complete the full term of their agreement. With such a high likelihood of customers stopping payments on their rental agreements, Rent-A-Center recognizes revenue from a specific contract only gradually as the cash is actually collected.

**fyi**

According to generally accepted auditing standards, auditors are often required to confirm Accounts Receivable balances directly with the company that supposedly owes the money. This can provide an independent check on the existence of the receivables.

**CENDANT** Discount-club retailers, such as SAM S CLUB, are an increasing presence in the market. In 1999, for example, Sam s Club locations had total sales of $24.8 billion. The revenue recognition issue with these clubs is when to recognize the revenue from the up-front membership fees. In 1998, a dispute about the accounting for membership fees exploded in the face of CENDANT, which markets consumer goods and travel services to its members. Cendant had been recognizing its membership fees evenly over the 12-month membership period. However, the Securities and Exchange Commission ruled that, because members can cancel at any time and get their money back, Cendant should not recognize any revenue until the end of the membership period. The change caused Cendant to revise its reported 1997 results from a net income of $55.4 million to a net loss of $217.2 million. The uproar over this change caused the company s market value to plummet by $20 billion.

| | Philip Morris | Loews |
|---|---|---|
| Major Cigarette Brands | Marlboro | Newport |
| | Benson & Hedges | Maverick |
| | Merit | Kent |
| | Virginia Slims | True |
| | Basic | Old Gold |
| Other Major Businesses and Products | Post Cereals | 14 hotels |
| | Jell-O | Diamond Offshore Drilling |
| | Kool-Aid | CNA Financial |
| | Oscar Mayer | Bulova |
| | Miller Beer | |
| | Kraft | |
| 1999 Revenues (billions) | $78.6 | $21.5 |
| % of Revenue from Tobacco Sales | 60% | 18.9% |

**Sources:** 1999 Form 10-K filings by Philip Morris and Loews. In addition to these two tobacco companies, R.J. Reynolds Tobacco was, until 1999, part of the same company as Nabisco. Those two have now been split.

Many colleges and universities prepare financial statements that are released to the public. When do you think a college or university should recognize revenue from student tuition?

As mentioned initially, the accounting for most sales transactions is straightforward the revenue is recognized when the sale is made. However, as illustrated by the examples in this section, when the work associated with a sale extends over a significant period of time, or when cash collectibility is in doubt, the accountant must use professional judgment in applying the revenue recognition criteria to determine the proper time to record the sale.

Properly recognizing revenue is made more difficult by the fact that companies often have an understandable desire to report revenue as soon as possible. For example, for a company that is applying for a large loan or making an initial public offering of stock, it is critical that reported revenue, and thus reported net income, be as high as possible. In addition, company managers are often scrambling to make revenue or profit targets. In many cases, the managers bonuses depend on whether these targets are met. Accordingly, managers often have great interest in making sure that revenue is recognized this year rather than waiting until next year. Receivables and revenue continue to be ripe areas for abuse or outright fraud because the associated accounting journal entry is so temptingly easy to make: debit Accounts Receivable and credit Revenue.

## to summarize

Revenue is recognized when the work is done and when cash collectibility is reasonably assured. The entries to record revenue from the sale of merchandise or from the performance of a service involve debits to Cash or Accounts Receivable and credits to Sales Revenue or Service Revenue.

**3**

Properly account for the collection of cash and describe the business controls necessary to safeguard cash.

## CASH COLLECTION

Recall the Farm Land Products example in which fertilizer was sold, partially for cash and partially on credit. Farm Land recorded the sales as follows:

| | | |
|---|---|---|
| Cash | 300 | |
| Accounts Receivable | 200 | |
| Sales Revenue | | 500 |
| *Sold 30 sacks of fertilizer for cash and 20 sacks on credit.* | | |

Subsequent collection of the $200 accounts receivable is recorded as follows:

| | | |
|---|---|---|
| Cash | 200 | |
| Accounts Receivable | | 200 |
| *Collected cash for $200 credit sale.* | | |

Note that Sales Revenue is not credited again when the cash is collected; the revenue was already recognized when the sale was made.

The following T-accounts show that the net result of these two transactions is an increase in Cash and Sales Revenue of $500.

| | Cash | | Accounts Receivable | | Sales Revenue | |
|---|---|---|---|---|---|---|
| Original sale | 300 | | 200 | | | 500 |
| Collection of account | 200 | | | 200 | | |
| Final balances | 500 | | | | | 500 |
| | To balance sheet | | | | | To income statement |

These two entries illustrate simple sales and collection transactions. Many companies, however, offer sales discounts and must deal with merchandise returns. The accounting for discounts and returns is explained below.

### Sales Discounts

**sales discount** A reduction in the selling price that is allowed if payment is received within a specified period.

In many sales transactions, the buyer is given a discount if the bill is paid promptly. Such incentives to pay quickly are called **sales discounts**, or cash discounts, and the discount terms are typically expressed in abbreviated form. For example, 2/10, n/30 means that a buyer will receive a 2% discount from the selling price if payment is made within 10 days of the date of purchase, but that the full amount must be paid within 30 days or it will be considered past due. (Other common terms are 1/10, n/30 and 2/10, EOM. The latter means that a 2% discount is granted if payment is made within 10 days after the date of sale; otherwise the balance is due at the end of the month.) A 2% discount is a strong incentive for a customer to pay within 10 days because it is equivalent to paying an annual interest rate of about 36% to wait and pay after the discount period.[3] In fact, if the amount owed is substantial, most firms will borrow money, if necessary, to take advantage of a sales discount. The interest rate they will have to pay a lending institution to borrow the money is considerably less than the effective interest rate of missing the sales discount.

If an account receivable is paid within a specified discount period, the entry to record the receipt of cash is different from the cash receipt entry shown earlier. Thus, if the $200 in Farm

3 This is calculated by computing an annual interest rate for the period that the money is sacrificed. With terms 2/10, n/30, a buyer who pays on the 10th day instead of the 30th sacrifices the money for 20 days. Since 2% is earned in 20 days, and there are just over 18 periods of 20 days in a year, earnings would be 18 × 2%, or approximately 36% annual interest.

Land credit sales were made with discount terms of 2/10, n/30, and if the customers paid within the discount period, the entry to record the receipt of cash is:

| | | |
|---|---|---|
| Cash | 196 | |
| Sales Discounts ($200 × 0.02) | 4 | |
| Accounts Receivable | | 200 |
| *Collected cash within the discount period for $200 credit sale.* | | |

**contra account** An account that is offset or deducted from another account.

Sales Discounts is a **contra account** (specifically, a contra-revenue account), which means that it is deducted from sales revenue on the income statement. This account is included with other revenue accounts in the general ledger, but unlike other revenue accounts, it has a debit balance rather than a credit balance.

## Sales Returns and Allowances

Customers often return merchandise, either because the item is defective or for a variety of other reasons. Most companies generally accept merchandise returns in order to maintain good customer relations. When merchandise is returned, the company must make an entry to reduce revenues and to reduce either Cash (a cash refund) or Accounts Receivable (an adjustment to the customer s account). A similar entry is required when the sales price is reduced because the merchandise was defective or damaged during shipment to the customer.

To illustrate the type of entry needed, we will assume that before any payments on account are made, Farm Land customers return goods costing $150; $100 in returns were made by cash customers, and $50 in returns were made by credit customers. The entry to record the return of merchandise is:

| | | |
|---|---|---|
| Sales Returns and Allowances | 150 | |
| Cash | | 100 |
| Accounts Receivable | | 50 |
| *Received $150 of returned merchandise; $100 from cash customers and $50 from credit customers.* | | |

**sales returns and allowances** A contra-revenue account in which the return of, or allowance for reduction in the price of, merchandise previously sold is recorded.

The credit customers will be sent a credit memorandum for the return, stating that credit has been granted and that the balance of their accounts (in total) is now $150 ($200 original credit purchase − $50 returns). Like Sales Discounts, **Sales Returns and Allowances** is a contra account that is deducted from sales revenue on the income statement. The income statement presentation for the revenue accounts, assuming payment within the discount period on the $150 balance in Accounts Receivable, is as follows:

**Income Statement**

| | | |
|---|---|---|
| Sales revenue | $500 | |
| Less: Sales discounts* | (3) | |
| Less: Sales returns and allowances | (150) | |
| Net sales revenue | | $347 |

*($200 − $50) × 0.02 = $3
Note that when merchandise is returned, sales discounts for the subsequent payment are granted only on the selling price of the merchandise not returned.

It might seem that the use of contra accounts (Sales Discounts and Sales Returns and Allowances) involves extra steps that would not be necessary if discounts and returns of merchandise were deducted directly from Sales Revenue. Although such direct deductions would have the same final effect on net income, the contra accounts separate initial sales from all returns,

**gross sales** Total recorded sales before deducting any sales discounts or sales returns and allowances.

**net sales** Gross sales less sales discounts and sales returns and allowances.

**cash** Coins, currency, money orders, checks, and funds on deposit with financial institutions; the most liquid of assets.

allowances, and discounts. This permits a company s management to analyze the extent to which customers are returning merchandise, receiving allowances, and taking advantage of discounts. If management find that excessive amounts of merchandise are being returned, they may decide that the company s sales returns policy is too liberal or that the quality of its merchandise needs improvement.

A company s total recorded sales, before any discounts or returns and allowances, are referred to as **gross sales**. When sales discounts or sales returns and allowances are deducted from gross sales, the resulting amount is referred to as **net sales**.

## Control of Cash

**Cash** includes coins, currency, money orders and checks (made payable or endorsed to the company), and money on deposit with banks or savings institutions that are available for use to satisfy the company s obligations. All the various transactions involving these forms of cash are usually summarized and reported under a single balance sheet account, Cash.

**fyi**

In its balance sheet (see Appendix A), **MICROSOFT** follows the common practice of combining cash and short-term investments (bonds and U.S. Treasury securities) for the total Cash amount.

Because it is the easiest asset to spend if it is stolen, cash is a tempting target and must be carefully safeguarded. Several control procedures have been developed to help management monitor and protect cash. In Chapter 5, internal controls for cash and other assets were discussed. Because cash is particularly vulnerable to loss or misuse, however, we will discuss three important controls that are an integral part of accounting for cash.

One of the most important controls is that the handling of cash be separated from the recording of cash. The purpose of this separation of duties is that it becomes more difficult for theft or errors to occur when two or more people are involved. If the cash records are maintained by an employee who also has access to the cash itself, cash can be stolen or borrowed, and the employee can cover up the shortage by falsifying the accounting records.

**fyi**

Consider the case of an employee who both receives payments and keeps the books. He or she could pocket a cash payment from one customer and not record the receipt until payment is received from a second customer. The second customer s payment could be recorded when a third customer pays, and so on. This type of delayed recording of payments is called *lapping*; it allows an employee to use company money for extended periods of time.

A second cash control practice is to require that all cash receipts be deposited daily in bank accounts. This disciplined, rigid process ensures that personal responsibility for the handling of cash is focused on the individual assigned to make the regular deposit. In addition, this process prevents the accumulation of a large amount of cash even the most trusted employee can be tempted by a large cash hoard.

A third cash control practice is to require that all cash expenditures (except those paid out of a miscellaneous petty cash fund) be made with prenumbered checks. As we all know from managing our personal finances, payments made with pocket cash are quickly forgotten and easily concealed. In contrast, payments made by check are well documented, both in our personal check registers and by our bank.

In addition to safeguarding cash, a business must ensure that cash is wisely managed. In fact, many businesses establish elaborate control and budgeting procedures for monitoring cash balances and estimating future cash needs. Companies also try to keep only minimum balances in no-interest or low-interest checking accounts; other cash is kept in more high-yielding investments such as certificates of deposit.

## to summarize

The amount of cash collected from customers can be reduced because of sales discounts and sales returns and allowances. On the income statement, sales discounts and sales returns and allowances are subtracted from gross sales to arrive at net sales. Cash is a tempting target for fraud or theft, so companies must carefully monitor and control the way cash is handled and accounted for. Common controls include (1) separation of duties in handling and accounting for cash, (2) daily deposits of all cash receipts, and (3) payment of all expenditures by prenumbered checks.

**4**

Record the losses resulting from credit customers who do not pay their bills.

## ACCOUNTING FOR CREDIT CUSTOMERS WHO DON T PAY

**receivables** Claims for money, goods, or services.

**accounts receivable** A current asset representing money due for services performed or merchandise sold on credit.

The term **receivables** refers to a company s claims for money, goods, or services. Receivables are created through various types of transactions, the two most common being the sale of merchandise or services on credit and the lending of money. On a personal level, we are all familiar with credit. Because credit is so readily available, we can buy such items as cars, refrigerators, and big-screen TVs, even when we cannot afford to pay cash for them. Major retail companies such as **SEARS**, oil companies such as **SHELL**, and credit card companies such as **VISA**, **MASTERCARD**, and **AMERICAN EXPRESS** have made credit available to almost every person in the United States. We live in a credit world not only on the individual level, but also at the wholesale and manufacturing business levels.

**f y i**

Credit card sales can be viewed as a way for a business to reap the benefit of increased credit sales without having to set up a bookkeeping and collection service for accounts receivable. The credit card company screens customers based on their creditworthiness, sends out the bills, collects the cash, and bears the cost of any uncollectible accounts. A business that accepts credit card sales pays a fee ranging from 1 to 5 percent of credit card sales.

In business, credit sales give rise to the most common type of receivables: accounts receivable. **Accounts receivable** are the amounts owed to a business by its credit customers and are usually collected in cash within 10 to 60 days. Accounts receivable result from informal agreements between a company and its credit customers; a more formal contract, including interest on the unpaid balance, is called a note receivable. Other receivables may result from loans to officers or employees of a company, for example. To identify and maintain the distinction between these receivables, businesses establish a separate general ledger account for each classification. If the amount of a receivable is material, it is separately identified on the balance sheet. Receivables that are to be converted to cash within a year (or the normal operating cycle) are classified as current assets and listed on the balance sheet below Cash. In this section of the chapter, we discuss the accounting issues associated with credit customers who don t pay.

**bad debt** An uncollectible account receivable.

When companies sell goods and services on credit (as most do), there are usually some customers who do not pay for the merchandise they purchase; these are referred to as **bad debts**. In fact, most businesses expect a small percentage of their receivables to be uncollectible. If a firm tries too hard to eliminate the possibility of losses from nonpaying customers, it usually makes its credit policy so restrictive that valuable sales are lost. On the other hand, if a firm extends credit too easily, the total cost of maintaining the accounts receivable system may exceed the benefit gained from attracting customers by allowing them to buy on credit (due to the number of accounts to track and uncollectible receivables to try to collect). Because of this dilemma, most firms carefully monitor their credit sales and accounts receivable to ensure that their policies are neither too restrictive nor too liberal.

When an account receivable becomes uncollectible, a firm incurs a bad debt loss. This loss is recognized as a cost of doing business, so it is classified as a selling expense. There are two ways to account for losses from uncollectible accounts: the direct write-off method and the allowance method.

### Direct Write-Off Method

**direct write-off method** The recording of actual losses from uncollectible accounts as expenses during the period in which accounts receivable are determined to be uncollectible.

With the **direct write-off method**, an uncollectible account is recognized as an expense at the time it is determined to be uncollectible. For example, assume that during the year 2003, Farm Land Products had total credit sales of $300,000. Of this amount, $250,000 was subsequently collected in cash during the year, leaving a year-end balance in Accounts Receivable of $50,000 ($300,000 − $250,000). The summary journal entries to record this information are:

| | | |
|---|---|---|
| Accounts Receivable | 300,000 | |
| Sales Revenue | | 300,000 |
| *To record total credit sales for the year.* | | |
| Cash | 250,000 | |
| Accounts Receivable | | 250,000 |
| *To record total cash collections for the year.* | | |

business environment essay

**Overstating Receivables** One of the easiest ways to overstate income is to overstate receivables. For example, Michael Weinstein, former chairman and CEO of **COATED SALES, INC.**, orchestrated a financial fraud scheme that ultimately cost investors close to $100 million. Coated Sales, Inc., was a New Jersey company that manufactured textiles coated with special chemicals, used for making such products as yacht sails, bullet-proof vests, conveyor belts, and parachutes. The company was best known for supplying the fabric used in the sails of the America s Cup winning yacht *Stars and Stripes*.

Coated Sales was started as the second career of millionaire entrepreneur Michael Weinstein, who had retired in his 30s and sold the discount drug store chain he had built. Looking for a new business, he became interested in textiles through a friend. The proposition was simple: take unfinished textiles, known as gray goods, and finish them with specialized coatings or treatments. The company s earnings, though minuscule at first, began to double and even triple every year sometimes every six months.

The fraud was instigated by inflating Coated s sales and earnings through the creation of phony invoices purporting to show sales of goods. Coated officials prebilled invoices to customers so they could obtain payment for goods before they were shipped.

Assume that one credit customer, Jake Palmer, has an account balance of $1,500 that remains unpaid for several months in 2004. If, after receiving several past-due notices, Palmer still does not pay, Farm Land will probably turn the account over to an attorney or a collection agency. Then, if collection attempts fail, the company may decide that the Palmer account will not be collected and write it off as a loss. The entry to record the expense under the direct write-off method is:

| | | |
|---|---|---|
| Bad Debt Expense | 1,500 | |
| Accounts Receivable | | 1,500 |
| *To write off the uncollectible account of Jake Palmer.* | | |

**bad debt expense** An account that represents the portion of the current period s credit sales that are estimated to be uncollectible.

**Bad Debt Expense** is usually considered a selling expense on the income statement. Although the direct write-off method is objective (the account is written off at the time it proves to be uncollectible), it most likely would violate the matching principle, which requires that all costs and expenses incurred in generating revenues be identified with those revenues period by period. With the direct write-off method, sales made near the end of one accounting period may not be recognized as uncollectible until the next period. In this example, the revenue from the sale to Jake Palmer is recognized in 2003, but the expense from the bad debt is not recognized until 2004. As a result, expenses are understated in 2003 and overstated in 2004. This makes the direct write-off method unacceptable from a theoretical point of view. The direct write-off method is allowable only if bad debts involve small, insignificant amounts.

## The Allowance Method

**allowance method** The recording of estimated losses due to uncollectible accounts as expenses during the period in which the sales occurred.

The **allowance method** satisfies the matching principle because it accounts for uncollectibles during the same period in which the sales occurred. With this method, a firm uses its experience (or industry averages) to estimate the amount of receivables arising from this year s credit sales that will ultimately become uncollectible. That estimate is recorded as bad debt expense in the period of sale. Although the use of estimates may result in a somewhat imprecise expense figure, this is generally thought to be a less serious problem than the direct write-off method s failure to match bad debt expenses with the sales that caused them. In addition, with experience, these estimates tend to be quite accurate.

Coated then began sending out false invoices to customers, recording receivables, and obtaining funds for sales that never occurred. To prevent the customers from denying the sales, the company involved the customers in the racket. For example, Robert Solomon of **GLOBE SPORTS PRODUCTS** paid the fictitious bills and would then receive the money back from Weinstein. Due to the inflated sales and receivables, the value of Coated s stock rose from $1.50 per share in its initial public offering to over $12 per share in 1987. From 1984 to 1987, sales allegedly rose from $9.9 million to over $90 million.

In addition, Weinstein inflated accounts receivable by billing fictitious customers. He used the inflated accounts receivable account to secure large bank loans. For example, **BANCBOSTON FINANCIAL COMPANY** loaned Coated $45 million, based on the supposed existence of $51 million in accounts receivable that served as collateral for the loan.

Coated s auditor, **KPMG PEAT MARWICK**, withdrew because of its suspicions. Within days, Coated Sales stock value tumbled from $8 to $2 a share. Shortly thereafter, the corporation s credit dried up, forcing it to declare bankruptcy.

**Source:** Graham Button, Homeless Jailbird, *Forbes*, August 17, 1992, p. 13.

To illustrate the allowance method, assume that Farm Land Products estimates that the bad debts created by its $300,000 in credit sales in 2003 will ultimately total $4,500. Note that this is a statistical estimate on average, bad debts will be $4,500, but Farm Land does not yet know exactly which customers will be the ones who will fail to pay. The entry to record this estimated bad debt expense for 2003 is:

| | | |
|---|---|---|
| Bad Debt Expense | 4,500 | |
| Allowance for Bad Debts | | 4,500 |
| *To record the estimated bad debt expense for the current year.* | | |

**allowance for bad debts** A contra account, deducted from Accounts Receivable, that shows the estimated losses from uncollectible accounts.

Bad Debt Expense is a selling expense on the income statement, and **Allowance for Bad Debts** is a contra account to Accounts Receivable on the balance sheet. An allowance account is used because the company does not yet know which receivables will not be collected. Later on, for example, in 2004, as actual losses are recognized, the balance in Allowance for Bad Debts is reduced. For example, if in 2004 Jake Palmer s receivable for $1,500 is specifically identified as being uncollectible, the entry is:

| | | |
|---|---|---|
| Allowance for Bad Debts | 1,500 | |
| Accounts Receivable | | 1,500 |
| *To write off the uncollectible account of Jake Palmer.* | | |

Note that the write-off entry in 2004 does not affect net income in 2004. Instead, the net income in 2003, when the credit sale to Jake Palmer was originally made, already reflects the estimated bad debt expense. Think of this entry as follows: The $1,500 Jake Palmer account has been shown to be bad, so it is thrown away via a credit to Accounts Receivable. In addition, Allowance for Bad Debts, which is a general estimate of the amount of bad accounts, is reduced by $1,500 because the bad Palmer account has been specifically identified and eliminated. In one entry, the amounts in Accounts Receivable and Allowance for Bad Debts have been reduced. Assume that the balance in Accounts Receivable was $50,000 and the balance in Allowance for Bad Debts was $4,500 before the Palmer account was written off. The net amount in Accounts

Receivable after the $1,500 write-off is exactly the same as it was before the entry, as shown here.

| Before Write-Off Entry | | After Write-Off Entry | |
|---|---|---|---|
| Accounts receivable | $50,000 | Accounts receivable ($50,000 − $1,500) | $48,500 |
| Less allowance for bad debts | 4,500 | Less allowance for bad debts ($4,500 − $1,500) | 3,000 |
| Net balance | $45,500 | Net balance | $45,500 |

**net realizable value of accounts receivable** The net amount that would be received if all receivables considered collectible were collected; equal to total accounts receivable less the allowance for bad debts.

The net balance of $45,500 reflects the estimated **net realizable value of accounts receivable**, that is, the amount of receivables the company actually expects to collect.

The following T-account shows the kinds of entries that are made to Allowance for Bad Debts:

**Allowance for Bad Debts**

| Actual write-offs of uncollectible accounts | Estimates of uncollectible accounts |
|---|---|

**f y i**

Sears discloses in its 1999 annual report that it writes an account off as uncollectible after a customer has failed to make a required payment for eight billing cycles in a row.

Occasionally, a customer whose account has been written off as uncollectible later pays the outstanding balance. When this happens, the company reverses the entry that was used to write off the account and then recognizes the payment. For example, if Jake Palmer pays the $1,500 after his account has already been written off, the entries to correct the accounting records are:

| | | |
|---|---|---|
| Accounts Receivable | 1,500 | |
| Allowance for Bad Debts | | 1,500 |
| *To reinstate the balance previously written off as uncollectible.* | | |
| Cash | 1,500 | |
| Accounts Receivable | | 1,500 |
| *Received payment in full of previously written-off accounts receivable.* | | |

**f y i**

Banks often recover loan amounts that were previously written off as uncollectible. For example, for the three-year period ending in 1997, **CITICORP** managed to collect a total of $2.053 billion in loans that had been written off in prior years.

Because customers sometimes pay their balances after their accounts are written off, it is important for a company to have good control over both the cash collection procedures and the accounting for accounts receivable. Otherwise, such payments as the previously written-off $1,500 could be pocketed by the employee who receives the cash, and it would never be missed. This is one reason that most companies separate the handling of cash from the recording of cash transactions in the accounts.

Because the amount recorded in Bad Debt Expense affects both the reported net realizable value of the receivables and net income, companies must be careful to use good estimation procedures. These estimates can focus on an examination of either the total number of credit sales during the period or the outstanding receivables at year-end to determine their collectibility.

**ESTIMATING UNCOLLECTIBLE ACCOUNTS RECEIVABLE AS A PERCENTAGE OF CREDIT SALES** One method of estimating bad debt expense is to estimate uncollectible receivables as a percentage of credit sales for the period. If a company uses this method, the amount of uncollectibles will be a straight percentage of the current year s credit sales. That percentage will be a projection based on experience in prior years, modified for any changes expected for the current period. For example, in the Farm Land example, credit sales for the year of $300,000 are expected to generate bad debts of $4,500, indicating that 1.5% of all credit sales are expected

to be uncollectible ($4,500 ÷ $300,000 = 1.5%). Farm Land would evaluate the percentage each year, in light of its continued experience, to see whether the same percentage still seems reasonable. In addition, if economic conditions have changed for Farm Land s customers (such as the onset of a recession making it more likely that debts will remain uncollected), the percentage would be adjusted.

When this percentage of sales method is used, the existing balance (if there is one) in Allowance for Bad Debts does not affect the amount computed and is not included in the adjusting entry to record bad debt expense. The 1.5% of the current year s sales that is estimated to be uncollectible is calculated and entered separately, and then added to the existing balance. For example, if the existing credit balance is $2,000, the $4,500 will be added, making the new credit balance $6,500. The rationale for not considering the existing $2,000 balance in Allowance for Bad Debts is that it relates to previous periods sales and reflects the company s estimate (as of the beginning of the year) of prior years accounts receivable that are expected to be uncollectible.

Should a company work to reduce its bad debt expense to zero? Explain.

In determining the percentage of credit sales that will be uncollectible, a company must estimate the total amount of loss on the basis of experience or industry averages. Obviously, a company that has been in business for several years should be able to make more accurate estimates than a new company. Many established companies use a three- or five-year average as the basis for estimating losses from uncollectible accounts.

**ESTIMATING UNCOLLECTIBLE ACCOUNTS RECEIVABLE AS A PERCENTAGE OF TOTAL RECEIVABLES** Another way to estimate uncollectible receivables is to use a percentage of total receivables. Using this method, the amount of uncollectibles is a percentage of the total receivables balance at the end of the period. Assume that Farm Land decides to use this method and determines that 12% of the $50,000 in the year-end Accounts Receivable will ultimately be uncollectible. Accordingly, the credit balance in Allowance for Bad Debts should be $6,000 ($50,000 × 0.12). If there is no existing balance in Allowance for Bad Debts representing the estimate of bad accounts left over from prior years, then an entry for $6,000 is made. If the account has an existing balance, however, only the net amount needed to bring the credit balance to $6,000 is added. For example, an existing credit balance of $2,000 in Allowance for Bad Debts results in the following adjusting entry:

| | | |
|---|---|---|
| Bad Debt Expense | 4,000 | |
| Allowance for Bad Debts | | 4,000 |
| *To adjust the allowance account to the desired balance ($6,000 − $2,000 = $4,000).* | | |

In all cases, the ending balance in Allowance for Bad Debts should be the amount of total receivables estimated to be uncollectible.

In estimating bad debt expense, the percentage of sales method focuses on an estimation based directly on the level of the current year s credit sales. With the percentage of total receivables method, the focus is on estimating total bad debts existing at the end of the period; this number is compared to the leftover bad debts from prior years, and the difference is bad debt expense, the new bad debts created in the current period. These two techniques are merely alternative estimation approaches. In practice, as a check, a company would probably use both procedures to ensure that they yield roughly consistent results.

***Aging Accounts Receivable*** In the example just given, the correct amount of the ending Allowance for Bad Debts balance was computed by applying the estimated uncollectible percentage (12%) to the entire Accounts Receivable balance ($50,000). In a more refined method of estimating the appropriate ending balance in Allowance for Bad Debts, a company bases its calculations on how long its receivables have been outstanding. With this procedure, called **aging accounts receivable**, each receivable is categorized according to age, such as current, 1 30 days past due, 31 60 days past due, 61 90 days past due, 91 120 days past due, and over 120 days past due. Once the receivables in each age classification are totaled, each total is multiplied by

**aging accounts receivable** The process of categorizing each account receivable by the number of days it has been outstanding.

**exhibit 6-5** Aging Accounts Receivable

| Customer | Balance | Current | Days Past Due 1 30 | 31 60 | 61 90 | 91 120 | Over 120 |
|---|---|---|---|---|---|---|---|
| A. Adams | $10,000 | $10,000 | | | | | |
| R. Bartholomew | 6,500 | | | $ 5,000 | | | $1,500 |
| F. Christiansen | 6,250 | 5,000 | $1,250 | | | | |
| G. Dover | 7,260 | | | 7,260 | | | |
| M. Ellis | 4,000 | 4,000 | | | | | |
| G. Erkland | 2,250 | | | | $2,250 | | |
| R. Fisher | 1,500 | | 500 | | | $1,000 | |
| J. Palmer | 1,500 | | 1,500 | | | | |
| E. Zeigler | 10,740 | 4,000 | 6,740 | | | | |
| Totals | $50,000 | $23,000 | $9,990 | $12,260 | $2,250 | $1,000 | $1,500 |

**Estimate of Losses from Uncollectible Accounts**

| Age | Balance | Percentage Estimated to Be Uncollectible | Amount |
|---|---|---|---|
| Current | $23,000 | 1.5 | $ 345 |
| 1 30 days past due | 9,990 | 4.0 | 400 |
| 31 60 days past due | 12,260 | 20.0 | 2,452 |
| 61 90 days past due | 2,250 | 40.0 | 900 |
| 91 120 days past due | 1,000 | 60.0 | 600 |
| Over 120 days past due | 1,500 | 80.0 | 1,200 |
| Totals | $50,000 | | $5,897* |

*Receivables that are likely to be uncollectible.

an appropriate uncollectible percentage (as determined by experience), recognizing that the older the receivable, the less likely the company is to collect. Exhibit 6-5 shows how Farm Land could use an aging accounts receivable analysis to estimate the amount of its $50,000 ending balance in Accounts Receivable that will ultimately be uncollectible.

The allowance for bad debts estimate obtained using the aging method is $5,897. If the existing credit balance in Allowance for Bad Debts is $2,000, the required adjusting entry is:

| | | |
|---|---|---|
| Bad Debt Expense | 3,897 | |
| Allowance for Bad Debts | | 3,897 |
| *To adjust the allowance account to the desired ending balance ($5,897 − $2,000 = $3,897).* | | |

**caution**

The aging method is merely a more refined technique for estimating the desired balance in Allowance for Bad Debts.

The aging of accounts receivable is probably the most accurate method of estimating uncollectible accounts. It also enables a company to identify its problem customers. Companies that base their estimates of uncollectible accounts on credit sales or total outstanding receivables also often age their receivables as a way of monitoring the individual accounts receivable balances.

## Real-World Illustration of Accounting for Bad Debts

The application of bad debt accounting is illustrated using the financial statements of **YAHOO!** for 1997 1999. As shown in Exhibit 6-6, Yahoo! reported accounts receivable at the end of 1999

exhibit 6-6 Bad Debt Expense for Yahoo!

| Year | Ending Accounts Receivable | Ending Bad Debt Allowance | Bad Debt Allowance as a Percentage of Accounts Receivable |
|---|---|---|---|
| 1999 | $65,748* | $11,322 | 17.2% |
| 1998 | 40,036 | 5,947 | 14.9% |
| 1997 | 14,683 | 2,772 | 18.9% |

*Dollar amounts are in millions.

of $65.7 million and a bad debt allowance for bad debts of $11.3 million. In other words, credit customers owed Yahoo! $65.7 million as of the end of 1999; however, Yahoo! s best estimate was that $11.3 million of this amount would never be collected. This bad debt allowance amounted to 17.2% of the Accounts Receivable balance, down from 18.9% in 1997 but up from 14.9% in 1998. For a company operating in a stable economic environment with little change in the nature of its credit customers, this percentage would be expected to be about the same from year to year. In the case of Yahoo!, operating in the volatile Internet economy, it appears that there has been some variation in the collectibility of accounts receivable from one year to the next.

## to summarize

Accounts receivable arise from credit sales to customers. Even though companies monitor their customers carefully, there are usually some who do not pay for the merchandise they purchase. There are two ways of accounting for losses from uncollectible receivables: the direct write-off method and the allowance method. The allowance method is generally accepted in practice because it is consistent with the matching principle. Two ways of estimating losses from uncollectible receivables are (1) as a percentage of credit sales and (2) as some fraction of total outstanding receivables. A common method for applying the latter technique uses an aging accounts receivable analysis.

## 5

Evaluate a company s management of its receivables by computing and analyzing appropriate financial ratios.

## ASSESSING HOW WELL COMPANIES MANAGE THEIR RECEIVABLES

As you recall from the DuPont framework explained in Chapter 4, an important element of overall company performance is the efficient use of assets. With regard to accounts receivable, inefficient use means that too much cash is tied up in the form of receivables. A company that collects its receivables on a timely basis has cash to pay its bills. Companies that do not do a good job of collecting receivables are often cash poor, paying interest on short-term loans to cover their cash shortage or losing interest that could be earned by investing cash.

There are several methods of evaluating how well an organization is managing its accounts receivable. The most common method involves computing two ratios, accounts receivable turnover and average collection period. The **accounts receivable turnover** ratio is an attempt to determine how many times during the year a company is turning over or collecting its receivables. It is a measure of how many times old receivables are collected and replaced by new receivables. Accounts receivable turnover is calculated as follows:

**accounts receivable turnover** A measure used to indicate how fast a company collects its receivables; computed by dividing sales by average accounts receivable.

$$\text{Accounts Receivable Turnover} = \frac{\text{Sales Revenue}}{\text{Average Accounts Receivable}}$$

Notice that the numerator of this ratio is sales revenue, not credit sales. Conceptually, one might consider comparing the level of accounts receivable to the amount of credit sales instead of total sales. However, companies rarely, if ever, disclose how much of their sales are credit sales. For this ratio, you can think of cash sales as credit sales with a very short collection time (0 days). Also note that the denominator uses average accounts receivable instead of the ending balance. This recognizes that sales are generated throughout the year; the average Accounts Receivable balance is an approximation of the amount that prevailed during the year. If the Accounts Receivable balance is relatively unchanged during the year, then using the ending balance is acceptable and common. The following are the accounts receivable turnover ratios for two well-known companies for 1999:

$$\text{Wal-Mart } \frac{\$165.013 \text{ billion}}{\$1.230 \text{ billion}} = 134.2 \text{ times}$$

$$\text{Boeing } \frac{\$57.993 \text{ billion}}{\$3.371 \text{ billion}} = 17.2 \text{ times}$$

From this analysis, you can see that **WAL-MART** turns its receivables over much more often than does **BOEING**. This is not surprising given the different nature of the two businesses. Wal-Mart sells primarily to retail customers for cash. Remember, from Wal-Mart s standpoint, a credit card sale is the same as a cash sale since Wal-Mart receives its money instantly; it is the credit card company that must worry about collecting the receivable. Boeing, on the other hand, sells to airlines and governments that have established business credit relationships with Boeing. Thus, the nature of its business dictates that Boeing has a much larger fraction of its sales tied up in the form of accounts receivable than does Wal-Mart.

**average collection period** A measure of the average number of days it takes to collect a credit sale; computed by dividing 365 days by the accounts receivable turnover.

Accounts receivable turnover can then be converted into the number of days it takes to collect receivables by computing a ratio called **average collection period**. This ratio is computed by dividing 365 (or the number of days in a year) by the accounts receivable turnover as follows:

$$\text{Average Collection Period} = \frac{365}{\text{Accounts Receivable Turnover}}$$

Computing this ratio for both Wal-Mart and Boeing shows that it takes Wal-Mart only 2.7 days (365 ÷ 134.2) on average to collect its receivables, while Boeing takes an average of 21.2 days (365 ÷ 17.2).

Consider what might happen to Boeing s average collection period during an economic recession. During a recession, purchasers are often strapped for cash and try to delay paying on their accounts for as long as possible. Boeing might be faced with airlines that still want to buy airplanes but wish to stretch out the payment period. The result would be a rise in Boeing s average collection period; more of Boeing s resources would be tied up in the form of accounts receivable. In turn, Boeing would have to increase its borrowing in order to pay its own bills since it would be collecting less cash from its slow-paying customers. Proper receivables management involves balancing the desire to extend credit in order to increase sales with the need to collect the cash quickly in order to pay off your own bills.

## to summarize

Careful management of accounts receivable is a balance between extending credit to increase your sales and collecting cash quickly to reduce your need to borrow. Two ratios commonly used in monitoring the level of receivables are accounts receivable turnover and average collection period. The level of these ratios is determined by how well a company manages its receivables, as well as by what kind of business the company is in.

**6**

Match revenues and expenses by estimating and recording future warranty and service costs associated with a sale.

## RECORDING WARRANTY AND SERVICE COSTS ASSOCIATED WITH A SALE

Let s return to the Farm Land example in which 50 sacks of fertilizer were sold for $500. Assume that as part of each sale, Farm Land offers to send a customer service representative to the home or place of business of any purchaser who wants more detailed instructions on how to apply the fertilizer. Historical experience suggests that the buyer of one fertilizer sack in ten will request a visit from a Farm Land representative, and the material and labor cost of each visit averages $35. So, with 50 sacks of fertilizer sold, Farm Land has obligated itself to provide, on average, $175 in future customer service [(50 ÷ 10) × $35]. Proper matching requires that this $175 expense be estimated and recognized in the same period in which the associated sale is recognized. Otherwise, if the company waited to record customer service expense until the actual visits are requested, this period s sales revenue would be reported in the same income statement with customer service expense arising from last period s sales. The accountant is giving up some precision because the service expense must be estimated in advance. This sacrifice in precision is worth the benefit of being able to better match revenues and expenses.

The entry to recognize Farm Land s estimated service expense from the sale of 50 sacks of fertilizer is as follows:

| | | |
|---|---|---|
| Customer Service Expense | 175 | |
| Estimated Liability for Service | | 175 |
| *Estimated customer service costs on sales [(50 ÷ 10) × $35].* | | |

The credit entry, Estimated Liability for Service, is a liability. When actual expenses are incurred in providing the customer service, the liability is eliminated with the following type of entry:

| | | |
|---|---|---|
| Estimated Liability for Service | 145 | |
| Wages Payable (to service employees) | | 100 |
| Supplies | | 45 |
| *Actual customer service costs incurred.* | | |

This entry shows that supplies and labor were required to honor the service agreements. This procedure results in the service expense being recognized at the time of sale, not necessarily when the actual service occurs.

After these two journal entries are made, the remaining balance in Estimated Liability for Service will be $30, shown as follows:

| | Estimated Liability for Service | |
|---|---|---|
| Estimate at time of sale | | 175 |
| Actual service costs incurred | 145 | |
| Remaining balance | | 30 |

The $30 balance represents the estimated amount of service that still must be provided in the future resulting from the sale of the 50 sacks of fertilizer. If actual experience suggests that the estimated service cost is too high, a lower estimate would be made in connection with subsequent fertilizer sales. If estimated liability for service is too low, a higher estimate is made for subsequent sales. The important point is that the accountant would not try to go back and fix an estimate that later proves to be inexact; the accountant merely monitors the relationship between the estimated and actual service costs in order to adjust future estimates accordingly.

The accounting just shown for estimated service costs is the same procedure used for estimated warranty costs. For example, **GENERAL MOTORS** promises automobile buyers that it will fix, at no charge to the buyer, certain mechanical problems for a certain period of time. GM

estimates and records this warranty expense at the time the automobile sales are made. At the end of 1999, GM reported an existing liability for warranty costs of $15.3 billion. This amount is what GM estimates it will have to spend on warranty repairs in 2000 (and later years) on cars sold in 1999 (and earlier).

## to summarize

In addition to bad debt expense, there are other costs that must be estimated and recognized at the time a sale is made in order to ensure the proper matching of revenues and expenses. If a company makes promises about future warranty repairs or continued customer service as part of the sale, the value of these promises should be estimated and recorded as an expense at the time of the sale.

## expanded material

**Thus far the chapter has covered the main topics associated with selling goods or services, collecting the proceeds from those sales, and estimating and recording bad debt expense and service expense. The expanded material will cover three additional topics. First, an important tool of cash control, the bank reconciliation, will be explained. Second, the use of receivables to get cash immediately will be illustrated. Finally, the financial statement implications of making sales denominated in foreign currencies will be illustrated.**

**7**
Reconcile a checking account.

## RECONCILING THE BANK ACCOUNT

With the exception of small amounts of petty cash kept for miscellaneous purposes, most cash is kept in various bank accounts. Generally, only a few employees are authorized to sign checks, and they must have their signatures on file with the bank.

Each month the business receives a bank statement that shows the cash balance at the beginning of the period, the deposits, the amounts of the checks processed, and the cash balance at the end of the period. With the statement, the bank includes all of that month s canceled checks (or at least a listing of the checks), as well as debit and credit memos (for example, an explanation of charges for **NSF [not sufficient funds] checks** and service fees). From a bank s perspective, customers deposits are liabilities; hence, debit memos reduce the company s cash balance, and credit memos increase the balance.

**NSF (not sufficient funds) check** A check that is not honored by a bank because of insufficient cash in the check writer s account.

The July bank statement for one of Hunt Company s accounts is presented in Exhibit 6-7. This statement shows all activity in the cash account as recorded by the bank and includes four bank adjustments to Hunt s balance a bank service charge of $7 (the bank s monthly fee), $60 of interest paid by First Security Bank on Hunt s average balance, a $425 transfer into another account, and a $3,200 direct deposit made by a customer who regularly deposits payments directly to Hunt s bank account. Other adjustments that are commonly made by a bank to a company s account include:

**exhibit 6-7** July Bank Statement for Hunt Company

First Security Bank
Helena, Montana 59601

Statement of Account

HUNT COMPANY
1900 S. PARK LANE
HELENA, MT 59601

Account Number 325-78126

Date of Statement JULY 31, 2003

| Check Number | Checks and Withdrawals | Deposits and Additions | Date | Balance |
|---|---|---|---|---|
| | | | 6/30 | 13,000 |
| 620 | 140 | | 7/01 | 12,860 |
| 621 | 250 | 1,500 | 7/03 | 14,110 |
| 622 | 860 | | 7/05 | 13,250 |
| 623 | 210 | | 7/08 | 13,040 |
| | | 2,140 | 7/09 | 15,180 |
| 624 | 205 | | 7/10 | 14,975 |
| 626 | 310 | | 7/14 | 14,665 |
| | 425 T | | 7/15 | 14,240 |
| | | 3,200 D | 7/18 | 17,440 |
| 628 | 765 | | 7/19 | 16,675 |
| 629 | 4,825 | | 7/22 | 11,850 |
| 630 | 420 | | 7/24 | 11,430 |
| 632 | 326 | 1,600 | 7/25 | 12,704 |
| | | 2,100 | 7/26 | 14,804 |
| 633 | 210 | | 7/29 | 14,594 |
| 635 | 225 | | 7/31 | 14,369 |
| | 7 SC | 60 I | 7/31 | 14,422 |
| | 9,178 TOTAL CHECKS AND WITHDRAWALS | 10,600 TOTAL DEPOSITS AND ADDITIONS | | 14,422 BALANCE |

NSF = Not Sufficient Funds
D = Direct Deposit
SC = Service Charge
I = Interest
MS = Miscellaneous
T = Transfer Out of Account
ATM = Automated Teller Machine Transaction

1. *NSF (not sufficient funds).* This is the cancellation of a prior deposit that could not be collected because of insufficient funds in the check writer s (payer s) account. When a check is received and deposited in the payee s account, the check is assumed to represent funds that will be collected from the payer s bank. When a bank refuses to honor a check because of insufficient funds in the account on which it was written, the check is returned to the payee s bank and is marked NSF. The amount of the check, which was originally recorded as a deposit (addition) to the payee s account, is deducted from the account when the check is returned unpaid.
2. *MS (miscellaneous).* Other adjustments made by a bank.
3. *ATM (automated teller machine) transactions.* These are deposits and withdrawals made by the depositor at automated teller machines.
4. *Withdrawals for credit card transactions paid directly from accounts.* These types of cards, called debit cards, are like using plastic checks. Instead of the card holder getting a bill or statement, the amount charged is deducted from the card holder s bank balance.

It is unusual for the ending balance on the bank statement to equal the amount of cash recorded in a company s cash account. The most common reasons for differences are:

1. *Time period differences.* The time period of the bank statement does not coincide with the timing of the company s postings to the cash account.
2. *Deposits in transit.* These are deposits that have not been processed by the bank as of the bank statement date, usually because they were made at or near the end of the month.
3. *Outstanding checks.* These are checks that have been written and deducted from a company s cash account but have not cleared or been deducted by the bank as of the bank statement date.
4. *Bank debits.* These are deductions made by the bank that have not yet been recorded by the company. The most common are monthly service charges, NSF checks, and bank transfers out of the account.
5. *Bank credits.* These are additions made by the bank to a company s account before they are recorded by the company. The most common source is interest paid by the bank on the account balance.
6. *Accounting errors.* These are numerical errors made by either the company or the bank. The most common is transposition of numbers.

**bank reconciliation** The process of systematically comparing the cash balance as reported by the bank with the cash balance on the company s books and explaining any differences.

The process of determining the reasons for the differences between the bank balance and the company s cash account balance is called a **bank reconciliation**. This usually results in adjusting both the bank statement and the book (cash account) balances. If the balances were not reconciled (if the cash balance were left as is), the figure used on the financial statements would probably be incorrect, and external users would not have accurate information for decision making. More importantly, the bank reconciliation can serve as an independent check to ensure that the cash is being accounted for correctly within the company.

We will use Hunt Company s bank account to illustrate a bank reconciliation. The statement shown in Exhibit 6-7 indicates an ending balance of $14,422 for the month of July. After arranging the month s canceled checks in numerical order and examining the bank statement, Hunt s accountant notes the following:

1. A deposit of $3,100 on July 31 was not shown on the bank statement. (It was in transit at the end of the month.)
2. Checks No. 625 for $326, No. 631 for $426, and No. 634 for $185 are outstanding. Check No. 627 was voided at the time it was written.
3. The bank s service charge for the month is $7.
4. A direct deposit of $3,200 was made by Joy Company, a regular customer.
5. A transfer of $425 was made out of Hunt s account into the account of Martin Custodial Service for payment owed.
6. The bank paid interest of $60 on Hunt s average balance.
7. Check No. 630 for Thelma Jones s wages was recorded in the accounting records as $240 instead of the correct amount, $420.
8. The cash account in the general ledger shows a balance on July 31 of $13,937.

The bank reconciliation is shown in Exhibit 6-8. Since the bank and book balances now agree, the $16,585 adjusted cash balance is the amount that will be reported on the financial statements. If the adjusted book and bank balances had not agreed, the accountant would have had to search for errors in bookkeeping or in the bank s figures. When the balances finally agree, any necessary adjustments are made to the cash account to bring it to the correct balance. The entries to correct the balance include debits to Cash for all reconciling additions to the book balance and credits to Cash for all reconciling deductions from the book balance. Additions and deductions from the bank balance do not require adjustments to the company s books; the deposits in transit and the outstanding checks have already been recorded by the company, and, of course, bank errors are corrected by notifying the bank and having the bank make corrections. The adjustments required to correct Hunt s cash account are:

| | | |
|---|---|---|
| Cash | 3,260 | |
| Accounts Receivable | | 3,200 |
| Interest Revenue | | 60 |
| *To record the additions due to the July bank reconciliation (a $3,200 deposit made by Joy Company and $60 interest).* | | |
| Custodial Expense | 425 | |
| Miscellaneous Expense | 7 | |
| Wages Expense | 180 | |
| Cash | | 612 |
| *To record the deductions due to the July bank reconciliation (service charge, $7; a $180 recording error, check No. 630; bank transfer of $425 to Martin Custodial Service).* | | |

## to summarize

Because most payments are made by check, companies need to reconcile monthly bank statements with the cash balance reported on the company s books. This reconciliation process involves determining reasons for the differences and bringing the book and bank balances into agreement. Adjusting entries are then made for additions to and deductions from the book balance.

**8**

Understand how receivables can be used by a company to get cash immediately.

## USING RECEIVABLES TO GET CASH IMMEDIATELY

Sometimes companies need cash prior to the due dates of their receivables. Often, in these circumstances, such companies will sell or factor their accounts receivables to financing or factoring companies. Factoring companies charge a percentage of the receivable, usually ranging

**exhibit 6-8** July Bank Reconciliation for Hunt Company

**Hunt Company**
**Bank Reconciliation**
**July 31, 2003**

| | | | | | |
|---|---|---|---|---|---|
| Balance per bank statement | | $14,422 | Balance per books | | $13,937 |
| *Additions to bank balance:* | | | *Additions to book balance:* | | |
| Deposit in transit | | 3,100 | Direct deposit | $ 3,200 | |
| Total | | $17,522 | Interest | 60 | 3,260 |
| | | | Total | | $17,197 |
| *Deductions from bank balance:* | | | *Deductions from book balance:* | | |
| Outstanding checks: 625 | $326 | | Service charge | $ 7 | |
| 631 | 426 | | Bank transfer | 425 | |
| 634 | 185 | (937) | Error in recording check No. 630 (for Jones s wages) | 180 | (612) |
| **Adjusted bank balance** | | **$16,585** | **Adjusted book balance** | | **$16,585** |

from 2 to 15%, to buy receivables. If a company has notes receivable, these notes can be sold to a bank or finance company; selling a note is called discounting the note.

## Selling or Factoring Accounts Receivable

To illustrate, assume that Reno Trucking Company has a $1,000 receivable from Bunker Metals that has terms n/30. Rather than wait the 30 days to collect the receivable, Reno Trucking could sell or factor the receivable at the Easy-Money Factoring Company for a 5% discount fee. If Reno Trucking needs the money to pay drivers salaries and other expenses and factors the receivable, it would receive 95% of the $1,000, or $950, from Easy-Money Factoring. Sometimes accounts receivable are factored with recourse, meaning that Reno Trucking must pay the receivable if Bunker Metals defaults. At times, usually for a larger discount fee, receivables are sold without recourse, meaning that Reno Trucking has no obligation to pay, even if Bunker Metals defaults.

As an actual example, there is a small trucking company in Salt Lake City that owns five trucks and has another seven owner-operated trucks leased to it. The company primarily hauls steel from a large manufacturing plant in Utah to Chicago and hauls reclining chairs back to Utah from Chicago. Because the company is always pressed for cash, every receivable it has is factored at a rate of 6%. This means that the company receives only $94 on every $100 of receivables. Since the trucking company generally collects the receivables in 60 days, and there are approximately six 60-day periods in a year, the company is effectively paying 36% interest (6% × 6). Better cash management could make the company much more profitable.

## Discounting Notes Receivable

An account receivable is an informal agreement between the seller and the credit buyer. No formal contract is drawn up, and no interest rate is specified on the account (unless the customer fails to pay within the specified time). Sometimes customers sign formal contracts, called notes, when they buy merchandise or services on credit. Even more often, customers from whom accounts receivable are past due sign interest-bearing notes to receive additional time to make payment. A **note receivable** is a claim against someone, evidenced by an unconditional written promise to pay a sum of money on or before a specified future date. Depending on the length of time until the due date, the note may be classified as a current asset or a long-term asset. In addition, it may be either a trade note receivable or a nontrade note receivable. A trade note receivable represents an amount due from a customer who purchased merchandise. Businesses often accept notes receivable from customers because they are contractual obligations that usually earn interest. A nontrade note receivable arises from the lending of money to an individual or company other than a customer (for example, an employee). Exhibit 6-9 shows a typical note receivable.

**note receivable** A claim against a debtor, evidenced by an unconditional written promise to pay a certain sum of money on or before a specified future date.

There are several key terms associated with a note receivable. The **maker** of a note is the person or entity who signs the note and who must make payment on or before the due date. The **payee** is the person or entity to whom payment will be made. The **principal** is the face amount of the note. The **maturity date** is the date the note becomes due. The **interest rate** is the percentage of the principal that the payee annually charges the maker for the loan; the interest is the dollar amount paid by the maker in accordance with this rate. Interest can also be thought of as the service charge, or rent, for the use of money. The formula for computing the interest on a note is:

**maker** A person (entity) who signs a note to borrow money and who assumes responsibility to pay the note at maturity.

**payee** The person (entity) to whom payment on a note is to be made.

**principal** The amount that will be paid on a note or other obligation at the maturity date.

**maturity date** The date on which a note or other obligation becomes due.

**interest rate** The cost of using money, expressed as an annual percentage.

$$\text{Principal} \times \text{Interest Rate} \times \text{Time (in terms of a year)} = \text{Interest}$$

For example, if Komatsu Company accepts from Solomon Company a 12%, three-month, $2,000 note receivable, the interest is calculated as:

$$\$2{,}000 \times 0.12 \times 3/12 = \$60$$

Note that the 12% stated interest rate is based on a one-year period, even though the note is only for three months. Interest rates are traditionally stated in annual terms no matter what

**exhibit 6-9** Note Receivable

$2,000 (PRINCIPAL) Helena, Montana (LOCATION) July 15, 2003 (DATE)

Ninety (90) days AFTER DATE Solomon Company PROMISES

TO PAY TO THE ORDER OF Komatsu Company (PAYEE)

Two thousand and no/100 DOLLARS

PAYABLE AT First Security Bank

FOR VALUE RECEIVED, WITH INTEREST AT 12 percent per annum

*John Doe*
SIGNATURE OF MAKER

the term length of the credit agreement. If the $2,000 note is accepted in settlement of Solomon s unpaid account with Komatsu Company, the journal entry to record the note in Komatsu s books is:

| | | |
|---|---|---|
| Notes Receivable | 2,000 | |
| Accounts Receivable | | 2,000 |
| *Accepted 3-month, 12% note from Solomon Company in lieu of payment of its account receivable.* | | |

When the note matures and payment is made (three months later), Komatsu s entry to record the receipt of cash would be:

| | | |
|---|---|---|
| Cash | 2,060 | |
| Notes Receivable | | 2,000 |
| Interest Revenue | | 60 |
| *Received payment from Solomon Company for $2,000 note plus interest.* | | |

**maturity value** The amount of an obligation to be collected or paid at maturity; equal to principal plus any interest.

Principal plus interest ($2,060 in this example) is known as the **maturity value** of the note. If the note is not paid by the maturity date, negotiations with the maker usually result in the company extending the period for payment, issuing a new note, or retaining an attorney or collection agency to collect the money. If the note eventually proves to be worthless, it is written off as a loss against Allowance for Bad Debts. Often, when an agency or attorney is attempting to collect notes receivable, they are classified on the balance sheet as special receivables.

**discounting a note receivable** The process of the payee s selling notes to a financial institution for less than the maturity value.

Because notes receivable are contractual promises to pay money in the future, they are negotiable. They can be sold to banks and other financial institutions. The selling of a note to a financial institution is referred to as **discounting a note receivable**. This means that the holder of a note who needs cash before a note matures can sell the note (simply by endorsing it) to a financial institution. The maker of the note, therefore, owes the money to the financial institution or other endorsee. To a financial institution, purchasing a note for cash is just like making a loan; cash is given out now in return for repayment of principal with interest in the future. To a company selling a note, discounting is a way of receiving cash earlier than would otherwise be possible.

## to summarize

Companies that need cash prior to the time their accounts receivable are due often factor or sell those receivables to factoring companies that charge a factoring fee. Notes receivable are formal, interest-bearing credit agreements between a company and credit customers. Notes receivable are negotiable and can be discounted, or sold.

**9**

Account for the impact of changing exchange rates on the value of accounts receivable denominated in foreign currencies.

## FOREIGN CURRENCY TRANSACTIONS

All of the sales illustrated to this point in the text have been denominated in U.S. dollars. However, many U.S. companies do a large portion of their business in foreign countries. For example, 29% of **MICROSOFT** s sales in 1999 were denominated in currencies other than the U.S. dollar. So, what would Microsoft have to do to record a software sale denominated in Japanese yen or British pounds? This section answers that question.

When a U.S. company sells a good or provides a service to a party in a foreign country, the transaction amount is frequently denominated in U.S. dollars. The U.S. dollar is a relatively stable currency, and buyers from Azerbaijan to Zimbabwe are often eager to avoid the uncertainty associated with payments denominated in their local currencies. For example, no matter where they are located, buyers and sellers of crude oil almost always write the contract price in terms of U.S. dollars. A U.S. company accounts for a sales contract with a foreign buyer with the sales price denominated in U.S. dollars in the way illustrated previously in this chapter; no new accounting issues are raised. However, if a U.S. company enters into a transaction in which the price is denominated in a foreign currency, the U.S. company must use special accounting procedures to recognize the change in the value of the transaction as foreign currency exchange rates fluctuate. For example, if Microsoft makes a sale with a price of 100,000 Indonesian rupiah, Microsoft knows that it will eventually collect 100,000 rupiah, but Microsoft does not know what those rupiah will be worth, in U.S. dollar terms, until the actual rupiah payment is received. Such a transaction is called a **foreign currency transaction**; the accounting for these transactions is demonstrated in the following section.

**foreign currency transaction** A sale in which the price is denominated in a currency other than the currency of the seller s home country.

### Foreign Currency Transaction Example

To illustrate the accounting for a sale denominated in a foreign currency, assume that American Company sold goods with a price of 20,000,000 Korean won on March 23 to one of its Korean customers. Payment in Korean won is due July 12. American Company prepares quarterly financial statements on June 30. The following exchange rates apply:

| | U.S. Dollar Value of One Korean Won | Event |
|---|---|---|
| March 23 | $0.0010 | Sale |
| June 30 | 0.0007 | Financial statements prepared |
| July 12 | 0.0008 | Payment received on account |

On March 23, each Korean won is worth one-tenth of one U.S. cent. In other words, it takes 1,000 Korean won (1/0.0010) to buy one U.S. dollar. At this exchange rate, the 20,000,000-Korean-won contract is worth $20,000 (20,000,000 × $0.0010).

On March 23, American Company records the sale and the account receivable in its books as follows:

| | | |
|---|---|---|
| Accounts Receivable (fc) | 20,000 | |
| Sales Revenue | | 20,000 |

Note that this journal entry is exactly the same as those illustrated earlier in the chapter. The (fc) indicates that the Accounts Receivable asset is denominated in a foreign currency and, thus, subject to exchange rate fluctuations. Because the financial statements of American Company are reported in U.S. dollars, all transaction amounts must be converted into their U.S. dollar equivalents when they are entered into the formal accounting system.

**f y i**

The wide fluctuations in exchange rates in this illustration are unusual, but not unprecedented. For example, as part of the Asian financial crisis of 1997, the number of Korean won needed to purchase one U.S. dollar increased from 917.77 on October 23, 1997, to 1,952.68 on December 23, 1997.

On June 30, American Company prepares its quarterly financial statements. Because the 20,000,000-Korean-won contract price has not yet been collected in cash, American Company still has a receivable denominated in Korean won and must reflect the effect of the change in the exchange rate on the U.S. dollar value of that receivable. In this case the Korean won has decreased in value and is worth only $0.0007 on June 30. If American Company had to settle the contract on June 30, it would receive only $14,000 (20,000,000 × $0.0007). Thus, American Company must recognize an exchange loss of $6,000, or 20,000,000 × ($0.0010 − $0.0007). On July 12, American Company receives payment from its Korean customer. In the interim the value of the Korean won has increased slightly to $0.0008. When the receivable is collected, the 20,000,000 Korean won are worth $16,000 (20,000,000 × $0.0008), so now American Company has experienced a gain relative to its position on June 30. The effects of the fluctuation in the value of the Korean won can be summarized as follows:

| | U.S. Dollar Value of the Receivable | Gain or Loss |
|---|---|---|
| March 23 | $20,000 | Not applicable |
| June 30 | 14,000 | $6,000 loss |
| July 12 | 16,000 | $2,000 gain |

This information would be reported in American Company s three primary financial statements in the second quarter (ending June 30) and the third quarter (beginning July 1) as follows:

**Second Quarter:**

| Income Statement | | Balance Sheet | | Statement of Cash Flows | |
|---|---|---|---|---|---|
| Sales revenue | $20,000 | Accounts receivable | $14,000 | Cash collected from customers | $ 0 |
| Foreign exchange loss | (6,000) | | | | |

**Third Quarter:**

| Income Statement | | Balance Sheet | | Statement of Cash Flows | |
|---|---|---|---|---|---|
| Sales revenue | $ 0 | Cash | $16,000 | Cash collected from customers | $16,000 |
| Foreign exchange gain | 2,000 | Accounts receivable | 0 | | |

The net result of the sale in the second quarter, the collection of cash in the third quarter, and the changing exchange rates in between is to record a sale of $20,000, the collection of cash of $16,000, and a net exchange loss of $4,000 (a $6,000 loss in the second quarter and a $2,000 gain in the third quarter). The important point to note is that the sale is measured at the exchange rate on the date of sale and that any fluctuations between the sale date and the settlement date are recognized as exchange gains or losses.

What could American Company have done in the previous example to reduce its exposure to the risk associated with changing exchange rates? The easiest thing would have been to denominate the transaction in U.S. dollars. Then the risk of exchange rate changes would have fallen on the Korean company. Secondly, American Company could have locked in the price of Korean won by entering into a forward contract with a foreign currency broker. A forward contract is an example of a derivative contract. Derivatives are becoming more and more commonplace in today s business environment, and in Chapter 12 we examine derivatives and their uses and risks.

## to summarize

When a U.S. company makes a sale that is denominated in a foreign currency, the sale is called a foreign currency transaction. The sale is measured at the exchange rate on the date of sale, and any fluctuations between the sale date and the settlement date are recognized as exchange gains or losses.

## review of learning objectives

**1 Understand the three basic types of business activities: operating, investing, and financing.** The three major types of business activities are: (1) operating activities, (2) investing activities, and (3) financing activities. Operating activities include selling products or services, buying inventory for resale, and incurring and paying for necessary expenses associated with the primary activities of a business. Investing activities include purchasing property, plant, and equipment for use in the business or purchasing investments, such as stocks and bonds of other companies. Financing activities include raising money by means other than operations to finance a business. The two common financing activities are borrowing (debt financing) and selling ownership or equity interests (equity financing) in the company.

**2 Use the two revenue recognition criteria to decide when the revenue from a sale or service should be recorded in the accounting records.** Revenue is recognized when the work is done and when cash collectibility is reasonably assured. The entries to record revenue from the sale of merchandise or from the performance of a service involve debits to Cash or Accounts Receivable and credits to Sales Revenue or Service Revenue. In general, revenues are recognized at the time of a sale. If cash is collected before a service is provided or a product is delivered, however, then revenue should not be recognized until the promised action has been completed. Revenue for long-term contracts is recognized in proportion to the amount of the contract completed.

**3 Properly account for the collection of cash and describe the business controls necessary to safeguard cash.** The amount of cash collected from customers can be reduced because of sales discounts and sales returns and allowances. Sales discounts are reductions in the payments required of customers who pay their accounts quickly. Sales returns and allowances are payment reductions granted to dissatisfied customers. On an income statement, sales discounts and sales returns and allowances are subtracted from gross sales to arrive at net sales. Cash is a tempting target for fraud or theft, so companies must carefully monitor and control the way cash is handled and accounted for. Common controls include (1) separation of duties in the handling of and accounting for cash, (2) daily deposits of all cash receipts, and (3) payment of all expenditures by prenumbered checks.

**4 Record the losses resulting from credit customers who do not pay their bills.** Accounts receivable balances are generally collected from 10 to 60 days after the date of sale. There are two ways to account for losses from uncollectible receivables: the direct write-off method and the allowance method. Only the allowance method is generally acceptable because it matches expenses with revenues. Losses from uncollectible receivables can be estimated (1) as a percentage of total credit sales for the period or (2) as a percentage of total outstanding receivables. One technique for estimating uncollectible receivables as a percentage of total receivables is to perform an aging of accounts receivable.

**5 Evaluate a company s management of its receivables by computing and analyzing appropriate financial ratios.** Careful management of accounts receivable is a balance between extending credit to increase sales and collecting cash quickly to reduce the need to borrow. Two ratios commonly used in monitoring the level of receivables are accounts receivable turnover and average collection period. The level of these ratios is determined by how well a company manages its receivables, as well as by what kind of business the company is in.

**6 Match revenues and expenses by estimating and recording future warranty and service costs associated with a sale.** If a company makes promises about future warranty repairs or continued customer service as part of a sale, the value of these promises is estimated and recorded as an expense at the time of the sale. If experience suggests that the original estimate was in error, adjustments are made to the estimates made in relation to subsequent sales; however, no attempt is made to go back and fix the original estimates.

expanded material

**7 Reconcile a checking account.** Most cash is kept in bank accounts, which are reconciled each month. Bank reconciliations adjust the bank and book balances so that they are the same correct amount. Differences arise between the book and bank balances because the company knows about some cash transactions before the bank does (such as deposits in transit and outstanding checks) and because the bank knows about some cash transactions before the company does (such as bank service charges).

**8 Understand how receivables can be used by a company to get cash immediately.** Sometimes companies that need cash in a hurry sell or factor their receivables. Companies buying receivables, known as factoring or financing companies, usually charge a discount of 2 to 15% of the receivable. Receivables can be factored with or without recourse. A note receivable is a claim against a debtor, evidenced by an unconditional written promise to pay a sum of money on or before a specified future date. The amount of interest to be earned annually is equal to: principal × interest rate × time period (in terms of one year) of the note. Notes can be discounted at a bank or other financial institution. Discounting allows the original payee of a note to receive money prior to the maturity date.

**9 Account for the impact of changing exchange rates on the value of accounts receivable denominated in foreign currencies.** U.S. companies transact large amounts of business with foreign parties. When the transaction is denominated in U.S. dollars, no new accounting issues are introduced. However, when a U.S. company enters into a transaction in which the price is denominated in a foreign currency, the U.S. company must use special accounting procedures to recognize the change in the value of the transaction as foreign currency exchange rates fluctuate. The sale is measured at the exchange rate on the date of sale, and any fluctuations between the sale date and the settlement date are recognized as exchange gains or losses.

## key terms and concepts

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accounts receivable turnover 255
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allowance for bad debts 251
allowance method 250
average collection period 256
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bad debts 249
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# review problem

**Accounting for Receivables and Warranty Obligations**

Douglas Company sells furniture. Approximately 10% of its sales are cash; the remainder are on credit. During the year ended December 31, 2003, the company had net credit sales of $2,200,000. As of December 31, 2003, total accounts receivable were $800,000, and Allowance for Bad Debts had a debit balance of $1,100 prior to adjustment. In the past, approximately 1% of credit sales have proved to be uncollectible. An aging analysis of the individual accounts receivable revealed that $32,000 of the Accounts Receivable balance appeared to be uncollectible.

The largest credit sale during the year occurred on December 4, 2003, for $72,000 to Aaron Company. Terms of the sale were 2/10, n/30. On December 13, Aaron Company paid $60,000 of the receivable balance and took advantage of the 2% discount. The remaining $12,000 was still outstanding on March 31, 2004, when Douglas Company learned that Aaron Company had declared bankruptcy. Douglas wrote the receivable off as uncollectible.

On December 31, 2003, Douglas Company estimated that it would cost $11,000 in labor and various expenditures to service the furniture it had sold (under 90-day warranty agreements) during the last three months of 2003. During January 2004, the company spent $430 in labor and $600 for supplies to perform service on defective furniture that was sold during the year 2003.

*Required:* Prepare the following journal entries:

1. The sale of $72,000 of furniture on December 4, 2003, to Aaron Company on credit.
2. The collection of $58,800 from Aaron Company on December 13, 2003, assuming the company allows the discount on partial payment.
3. Record Bad Debt Expense on December 31, 2003, using the percentage of credit sales method.
4. Record Bad Debt Expense on December 31, 2003, using the aging of receivables method.
5. Record estimated warranty expense on December 31, 2003.
6. Record actual expenditures to service defective furniture under the warranty agreements on January 31, 2004.
7. Write off the balance of the Aaron Company receivable as uncollectible, March 31, 2004.

**Solution** The journal entries would be recorded as follows:

| | | | |
|---|---|---|---|
| 1. Dec. 4, 2003 | Accounts Receivable | 72,000 | |
| | Sales Revenue | | 72,000 |
| | *Sold $72,000 of furniture to Aaron Company on credit.* | | |
| 2. Dec. 13, 2003 | Cash | 58,800 | |
| | Sales Discounts | 1,200 | |
| | Accounts Receivable | | 60,000 |
| | *Collected $58,800 from Aaron Company on December 4 sale and recognized the 2% discount taken (0.02 × $60,000 = $1,200).* | | |
| 3. Dec. 31, 2003 | Bad Debt Expense | 22,000 | |
| | Allowance for Bad Debts | | 22,000 |
| | *Recorded bad debt expense as 1% of credit sales of $2,200,000 ($2,200,000 × 0.01 = $22,000).* | | |

*Note:* When using the percentage of credit sales method to estimate bad debt expense, the existing balance in the allowance for bad debts account is ignored.

| | | | |
|---|---|---|---|
| 4. Dec. 31, 2003 | Bad Debt Expense | 33,100 | |
| | Allowance for Bad Debts | | 33,100 |
| | *Recorded bad debt expense using the aging of accounts receivable method ($32,000 + $1,100 debit balance).* | | |

*Note:* When using the percentage of total receivables method (e.g., by aging receivables) to estimate bad debt expense, the existing balance in Allowance for Bad Debts must be taken into consideration so that the new balance is the amount of receivables not expected to be collected.

| | | | |
|---|---|---|---|
| 5. Dec. 31, 2003 | Customer Service Expense | 11,000 | |
| | Estimated Liability for Service | | 11,000 |
| | *Estimated customer service (warranty) costs on furniture sold during the last three months of 2003. (The warranty period is 90 days.)* | | |
| 6. Jan. 31, 2004 | Estimated Liability for Service | 1,030 | |
| | Wages Payable (to service employees) | | 430 |
| | Supplies | | 600 |
| | *Actual customer service costs incurred.* | | |
| 7. March 31, 2004 | Allowance for Bad Debts | 12,000 | |
| | Accounts Receivable | | 12,000 |
| | *Wrote off the balance in the Aaron Company account as uncollectible.* | | |

## discussion questions

1. What are the three types of basic business activities?
2. Why is the purchase of inventory for resale to customers classified as an operating activity rather than an investing activity?
3. When should revenues be recognized and reported?
4. Why do you think misstatements of revenues (e.g., recognizing revenues before they are earned) is one of the most common ways to manipulate financial statements?
5. Why is it important to have separate sales returns and allowances and sales discounts accounts? Wouldn t it be much easier to directly reduce the sales revenue account for these adjustments?
6. Why do companies usually have more controls for cash than for other assets?
7. What are three generally practiced controls for cash, and what is the purpose of each control?
8. Why do most companies tolerate having a small percentage of uncollectible accounts receivable?
9. Why does the accounting profession require the use of the allowance method of accounting for losses due to bad debts rather than the direct write-off method?
10. With the allowance method, why is the net balance, or net realizable value, of Accounts Receivable the same after the write-off of a receivable as it was prior to the write-off of the uncollectible account?
11. Why is the aging of accounts receivable usually more accurate than basing the estimate on total receivables?
12. Why is it important to monitor operating ratios such as accounts receivable turnover?
13. Why must the customer service expense (warranty) sometimes be recorded in the period prior to when the actual customer services will be performed?

### expanded material

14. What are the major reasons that the balance of a bank statement is usually different from the cash book balance (Cash per the general ledger)?
15. Why don t the additions and deductions from the bank balance on a bank reconciliation require adjustment by the company?
16. What is the advantage of having a note receivable over having an account receivable?
17. Why would someone discount a note receivable?
18. Why would someone factor an account receivable?
19. Do all transactions by U.S. companies with foreign parties require special accounting procedures by the U.S. companies? Explain.

## discussion cases

### CASE 6-1

### ZZZZ BEST AND FICTITIOUS RECEIVABLES

**ZZZZ BEST** was a Los Angeles based company specializing in carpet cleaning and insurance restoration. Prior to allegations of fraud and its declaration of bankruptcy in 1988, ZZZZ Best

was touted as one of the hottest stocks on Wall Street. In 1987, after only six years in business, the company had a market valuation exceeding $211 million, giving its genius president a paper fortune of $109 million. Lawsuits, however, alleged that the company was nothing more than a massive fraud scheme that fooled major banks, two CPA firms, an investment banker, and a prestigious law firm.

ZZZZ Best was started as a carpet-cleaning business by Barry Minkow, a 15-year-old high school student, in 1981. Although ZZZZ Best had impressive growth as a carpet-cleaning business, the growth was not nearly fast enough for the impatient Minkow. In 1985, ZZZZ Best announced that it was expanding into the insurance restoration business, restoring buildings that had been damaged by fire, floods, and other disasters. During 1985 and 1986, ZZZZ Best reported undertaking several large insurance restoration projects. The company reported high profits from these restoration jobs. A public stock offering in 1986 stated that 86% of ZZZZ Best Corporation s business was in the insurance restoration area.

Based on the company s high growth and reported income in 1987, a spokesperson for a large brokerage house was quoted in *Business Week* as saying that Barry Minkow is a great manager and ZZZZ Best is a great company. He recommended that his clients buy ZZZZ Best stock. That same year, the Association of Collegiate Entrepreneurs and the Young Entrepreneurs Organization placed Minkow on their list of the top 100 young entrepreneurs in America; and the mayor of Los Angeles honored Minkow with a commendation that said that he had set a fine entrepreneurial example of obtaining the status of a millionaire at the age of 18.

Unfortunately, ZZZZ Best s insurance business, its impressive growth, and its high reported income were totally fictitious. In fact, the company never once made a legitimate profit. Barry Minkow himself later said that he was a fraudster who convincingly deceived almost everyone involved with the company. Through the use of widespread collusion among company officials, Minkow was even able to hide the fraud from ZZZZ Best s external auditor. For example, when ZZZZ Best reported an $8.2 million contract to restore a building in San Diego, the external auditor demanded to see the building; this was difficult since neither the building nor the job existed. However, officials of ZZZZ Best gained access to a construction site and led the auditor through a tour of an unfinished building in San Diego to show that the restoration work was ongoing. The situation became very complicated for ZZZZ Best when the auditor later asked to see the finished job. ZZZZ Best had to spend $1 million to lease the building and hire contractors to finish six of the eight floors in ten days. The auditor was led on another tour and wrote a memo saying, Job looks very good. The auditor was subsequently faulted for looking only at what ZZZZ Best officials chose to show, without making independent inquiries.

Minkow s house of cards finally came crashing down as it became apparent to banks, suppliers, investors, and the auditors that the increasing difficulty ZZZZ Best was having with paying its bills was entirely inconsistent with a company reporting so much revenue and profit. In January 1988, a federal grand jury in Los Angeles returned a 57-count indictment, charging 11 individuals including ZZZZ Best founder and president, Barry Minkow with engaging in a massive fraud scheme. Minkow was later convicted and sentenced to 25 years in a federal penitentiary in Colorado.

ZZZZ Best grossly inflated its operating results by reporting bogus revenue and receivables. What factors prevent a company from continuing to report fraudulent results indefinitely? What could the auditor have done to uncover the ZZZZ Best fraud?

**Source:** This description is based on articles in *The Wall Street Journal*, *Forbes*, and investigative proceedings of the U.S. House of Representatives, Subcommittee on Energy and Commerce hearings: *The Wall Street Journal*, July 7, 1987, p. 1; July 9, 1987, p. 1; August 23, 1988, p. 1; U.S. House of Representatives, Subcommittee on Oversight and Investigation of the Committee on Energy and Commerce, January 27, 1988; U.S. House of Representatives, Subcommittee on Oversight and Investigation of the Committee on Energy and Commerce, February 1, 1988; Daniel Akst, How Barry Minkow Fooled the Auditors, *Forbes*, October 2, 1989, p. 126.

## CASE 6-2 RECOGNIZING REVENUE

HealthCare, Inc.,* operates a number of medical testing facilities around the United States. Drug manufacturers, such as **MERCK** and **BRISTOL-MYERS SQUIBB**, contract with HealthCare

*The name of the actual company has been changed.

for testing of their newly developed drugs and other medical treatments. HealthCare advertises, gets patients, and then administers the drugs or other experimental treatments, under a doctor s care, to determine their effectiveness. The Food and Drug Administration requires such human testing before allowing drugs to be prescribed by doctors and sold by pharmacists. A typical contract might read as follows:

> HealthCare, Inc., will administer the new drug, Lexitol, to 50 patients, once a week for 10 weeks, to determine its effectiveness in treating male baldness. Merck will pay HealthCare, Inc., $100 per patient visit, to be billed at the conclusion of the test period. The total amount of the contract is $50,000 (50 patients × 10 visits × $100 per visit).

Given these kinds of contracts, when should HealthCare recognize revenue when contracts are signed, when patient visits take place, when drug manufacturers are billed, or when cash is collected?

### CASE 6-3 CREDIT POLICY REVIEW

The president, vice president, and sales manager of Moorer Corporation were discussing the company s present credit policy. The sales manager suggested that potential sales were being lost to competitors because of Moorer Corporation s tight restrictions on granting credit to consumers. He stated that if credit policies were loosened, the current year s estimated credit sales of $3,000,000 could be increased by at least 20% next year with an increase in uncollectible accounts receivable of only $10,000 over this year s amount of $37,500. He argued that because the company s cost of sales is only 25% of revenues, the company would certainly come out ahead.

The vice president, however, suggested that a better alternative to easier credit terms would be to accept consumer credit cards such as **VISA** or **MASTERCARD**. She argued that this alternative could increase sales by 40%. The credit card finance charges to Moorer Corporation would be 4% of the additional sales.

At this point, the president interrupted by saying that he wasn t at all sure that increasing credit sales of any kind was a good thing. In fact, he suggested that the $37,500 of uncollectible accounts receivable was altogether too high. He wondered whether the company should discontinue offering sales on account.

With the information given, determine whether Moorer Corporation would be better off under the sales manager s proposal or the vice president s proposal. Also, address the president s suggestion that credit sales of all types be abolished.

## exercises

### EXERCISE 6-1 RECOGNIZING REVENUE

Supposedly, there is an over 200-year wait to buy **GREEN BAY PACKERS** season football tickets. The fiscal year-end (when they close their books) for the Green Bay Packers is March 30 of each year. If the Packers sell their season football tickets in February for the coming football season, when should the revenue from those ticket sales be recognized?

### EXERCISE 6-2 RECOGNIZING REVENUE

James Dee Company cleans the outside walls of buildings. The average job generates revenue of $800,000 and takes about two weeks to complete. Customers are required to pay for a job within 30 days after its completion. James Dee Company guarantees its work for five years

if the building walls get dirty within five years, James Dee will clean them again at no charge. James Dee is considering recognizing revenue using one of the following methods:

a. Recognize revenue when James Dee signs the contract to do the job.
b. Recognize revenue when James Dee begins the work.
c. Recognize revenue immediately after the completion of the job.
d. Recognize revenue 30 days after the completion of the job when the cash is collected.
e. Wait until the five-year guarantee period is over before recognizing any revenue.

Which revenue recognition option would you recommend to James Dee? Explain your answer.

## EXERCISE 6-3 RECOGNIZING REVENUE LONG-TERM CONSTRUCTION PROJECTS

In the year 2002, Salt Lake City, Utah, will host the Winter Olympics. To get ready for the Olympics, most of the major roads and highways in and around Salt Lake City are being renovated. It will take over three years to complete the highway projects, and **WASATCH CONSTRUCTORS**, the construction company performing the work, probably doesn t want to wait until the work is completed to recognize revenue. How would you suggest that the revenue on these highway construction projects be recognized?

## EXERCISE 6-4 REVENUE RECOGNITION

Yummy, Inc., is a franchiser that offers for sale an exclusive franchise agreement for $30,000. Under the terms of the agreement, the purchaser of a franchise receives a variety of services associated with the construction of a Yummy Submarine and Yogurt Shop, access to various product supply services, and continuing management advice and assistance once the retail unit is up and running. The contract calls for the franchise purchaser to make cash payments of $10,000 per year for three years to Yummy, Inc.

How should Yummy, Inc., account for the sale of a franchise contract? Specifically, when should the revenue and receivable be recognized?

## EXERCISE 6-5 CONTROL OF CASH

Molly Maloney is an employee of Marshall Company, a small manufacturing concern. Her responsibilities include opening the daily mail, depositing the cash and checks received into the bank, and making the accounting entries to record the receipt of cash and the reduction of receivables. Explain how Maloney might be able to misuse some of Marshall s cash receipts. As a consultant, what control procedures would you recommend?

## EXERCISE 6-6 RECORDING SALES TRANSACTIONS

On June 24, 2003, Hansen Company sold merchandise to Jill Selby for $80,000 with terms 2/10, n/30. On June 30, Selby paid $39,200 on her account and was allowed a discount for the timely payment. On July 20, Selby paid $24,000 on her account and returned $16,000 of merchandise, claiming that it did not meet contract terms.

Record the necessary journal entries on June 24, June 30, and July 20.

## EXERCISE 6-7 RECORDING SALES TRANSACTIONS

Lopez Company sold merchandise on account to Atlantic Company for $4,000 on June 3, 2003, with terms 2/10, n/30. On June 7, 2003, Lopez Company received $200 of returned merchandise from Atlantic Company and issued a credit memorandum for the appropriate amount. Lopez Company received payment for the balance of the bill on June 21, 2003.

Record the necessary journal entries on June 3, June 7, and June 21.

## EXERCISE 6-8 ESTIMATING BAD DEBTS

The trial balance of Stardust Company at the end of its 2003 fiscal year included the following account balances:

| Account | |
|---|---|
| Accounts receivable | $48,900 |
| Allowance for bad debts | 2,500 (debit balance) |

The company has *not yet* recorded any bad debt expense for 2003.

Determine the amount of bad debt expense to be recognized by Stardust Company for 2003, assuming the following independent situations:

1. An aging accounts receivable analysis indicates that probable uncollectible accounts receivable at year-end amount to $4,500.
2. Company policy is to maintain a provision for uncollectible accounts receivable equal to 3% of outstanding accounts receivable.
3. Company policy is to estimate uncollectible accounts receivable as equal to 0.5% of the previous year s annual sales, which were $200,000.

## EXERCISE 6-9

### ACCOUNTING FOR BAD DEBTS

The following data were associated with the accounts receivable and uncollectible accounts of Hilton, Inc., during 2003:

a. The opening credit balance in Allowance for Bad Debts was $900,000 at January 1, 2003.
b. During 2003, the company realized that specific accounts receivable totaling $920,000 had gone bad and had been written off.
c. An account receivable of $50,000 was collected during 2003. This account had previously been written off as a bad debt in 2002.
d. The company decided that Allowance for Bad Debts would be $920,000 at the end of 2003.

1. Prepare journal entries to show how these events would be recognized in the accounting system using:
   a. The direct write-off method.
   b. The allowance method.
2. Discuss the advantages and disadvantages of each method with respect to the matching principle.

## EXERCISE 6-10

### ACCOUNTING FOR UNCOLLECTIBLE ACCOUNTS RECEIVABLE

Dodge Company had the following information relating to its accounts receivable at December 31, 2002, and for the year ended December 31, 2003:

| | |
|---|---|
| Accounts receivable balance at 12/31/02 | $ 900,000 |
| Allowance for bad debts at 12/31/02 (credit balance) | 50,000 |
| Gross sales during 2003 (all credit) | 5,000,000 |
| Collections from customers during 2003 | 4,500,000 |
| Accounts written off as uncollectible during 2003 | 60,000 |
| Estimated uncollectible receivables at 12/31/03 | 110,000 |

Dodge Company uses the percentage of receivables method to estimate bad debt expense.

1. At December 31, 2003, what is the balance of Dodge Company s Allowance for Bad Debts? What is the bad debt expense for 2003?
2. At December 31, 2003, what is the balance of Dodge Company s gross accounts receivable?

## EXERCISE 6-11

### AGING OF ACCOUNTS RECEIVABLE

Cicero Company s accounts receivable reveal the following balances:

| Age of Accounts | Receivable Balance |
|---|---|
| Current | $600,000 |
| 1 30 days past due | 320,000 |
| 31 60 days past due | 80,000 |
| 61 90 days past due | 50,000 |
| 91 120 days past due | 9,000 |

The credit balance in Allowance for Bad Debts is now $26,000. After a thorough analysis of its collection history, the company estimates that the following percentages of receivables will eventually prove uncollectible:

| | |
|---|---|
| Current | 0.4% |
| 1 30 days past due | 3.0 |
| 31 60 days past due | 12.0 |
| 61 90 days past due | 60.0 |
| 91 120 days past due | 90.0 |

Prepare an aging schedule for the accounts receivable, and give the journal entry for recording the necessary change in the allowance for bad debts account.

## EXERCISE 6-12

### AGING OF ACCOUNTS RECEIVABLE

The following aging of accounts receivable is for Harry Company at the end of its first year of business:

**Aging of Accounts Receivable**
**December 31, 2003**

| | Overall | Less Than 30 Days | 31 to 60 Days | 61 to 90 Days | Over 90 Days |
|---|---|---|---|---|---|
| Ken Nelson | $ 10,000 | $ 8,000 | | $1,000 | $1,000 |
| Elaine Anderson | 40,000 | 31,000 | $ 4,000 | | 5,000 |
| Bryan Crist | 12,000 | 3,000 | 4,000 | 2,000 | 3,000 |
| Renee Warner | 60,000 | 50,000 | 10,000 | | |
| Nelson Hsia | 16,000 | 10,000 | 6,000 | | |
| Stella Valerio | 25,000 | 20,000 | | 5,000 | |
| Totals | $163,000 | $122,000 | $24,000 | $8,000 | $9,000 |

Harry Company has collected the following bad debt information from a consultant familiar with Harry s industry:

| Age of Account | Percentage Ultimately Uncollectible |
|---|---|
| Less than 30 days | 2% |
| 31 60 days | 10 |
| 61 90 days | 30 |
| Over 90 days | 75 |

1. Compute the appropriate Allowance for Bad Debts as of December 31, 2003.
2. Make the journal entry required to record this allowance. Remember that, since this is Harry s first year of operations, the allowance account at the beginning of the year was $0.
3. What is Harry s net accounts receivable balance as of December 31, 2003?

## EXERCISE 6-13

### DIRECT WRITE-OFF VERSUS ALLOWANCE METHOD

The vice president for Tres Corporation provides you with the following list of accounts receivable written off in the current year. (These accounts were recognized as bad debt ex-

pense at the time they were written off; i.e., the company was using the direct write-off method.)

| Date | Customer | Amount |
|---|---|---|
| March 30 | Rasmussen Company | $12,000 |
| July 31 | Dodge Company | 7,500 |
| September 30 | Larsen Company | 10,000 |
| December 31 | Peterson Company | 12,000 |

Tres Corporation s sales are all on an n/30 credit basis. Sales for the current year total $3,600,000, and analysis has indicated that uncollectible receivable losses historically approximate 1.5% of sales.

1. Do you agree or disagree with Tres Corporation s policy concerning recognition of bad debt expense? Why or why not?
2. If Tres were to use the percentage of sales method for recording bad debt expense, by how much would income before income taxes change for the current year?

## EXERCISE 6-14 ACCOUNTING FOR UNCOLLECTIBLE RECEIVABLES PERCENTAGE OF SALES METHOD

The trial balance of Sporting House, Inc., shows a $100,000 outstanding balance in Accounts Receivable at the end of 2002. During 2003, 75% of the total credit sales of $4,000,000 was collected, and no receivables were written off as uncollectible. The company estimated that 1.5% of the credit sales would be uncollectible. During 2004, the account of Larry Johnson, who owed $1,200, was judged to be uncollectible and was written off. At the end of 2004, the amount previously written off was collected in full from Mr. Johnson.

Prepare the necessary journal entries for recording all the preceding transactions relating to uncollectibles on the books of Sporting House, Inc.

## EXERCISE 6-15 COMPARING THE PERCENTAGE OF SALES AND THE PERCENTAGE OF RECEIVABLES METHODS

Keefer Company uses the percentage of sales method for computing bad debt expense. As of January 1, 2003, the balance of Allowance for Bad Debts was $200,000. Write-offs of uncollectible accounts during 2003 totaled $240,000. Reported bad debt expense for 2003 was $320,000, computed using the percentage of sales method.

Keith & Harding, the auditors of Keefer s financial statements, compiled an aging accounts receivable analysis of Keefer s accounts at the end of 2003. This analysis has led Keith & Harding to estimate that, of the accounts receivable Keefer has as of the end of 2003, $700,000 will ultimately prove to be uncollectible.

Given their analysis, Keith & Harding, the auditors, think that Keefer should make an adjustment to its 2003 financial statements. What adjusting journal entry should Keith & Harding suggest?

## EXERCISE 6-16 RATIO ANALYSIS

The following are summary financial data for Parker Enterprises, Inc., and Boulder, Inc., for three recent years:

| | Year 3 | Year 2 | Year 1 |
|---|---|---|---|
| Net sales (in millions): | | | |
| Parker Enterprises, Inc. | $ 3,700 | $ 3,875 | $ 3,882 |
| Boulder, Inc. | 17,825 | 16,549 | 15,242 |
| Net accounts receivable (in millions): | | | |
| Parker Enterprises, Inc. | 1,400 | 1,800 | 1,725 |
| Boulder, Inc. | 5,525 | 5,800 | 6,205 |

1. Using the above data, compute the accounts receivable turnover and average collection period for each company for years 2 and 3.
2. Which company appears to have the better credit management policy?

## EXERCISE 6-17 ASSESSING HOW WELL COMPANIES MANAGE THEIR RECEIVABLES

Assume that Hickory Company has the following data related to its accounts receivable:

| | 2002 | 2003 |
|---|---|---|
| Net sales | $1,425,000 | $1,650,000 |
| Net receivables: | | |
| Beginning of year | 375,000 | 333,500 |
| End of year | 420,000 | 375,000 |

Use these data to compute accounts receivable turnover ratios and average collection periods for 2002 and 2003. Based on your analysis, is Hickory Company managing its receivables better or worse in 2003 than it did in 2002?

## EXERCISE 6-18 MEASURING ACCOUNTS RECEIVABLE QUALITY

The following accounts receivable information is for Happy Tiny Company:

| | 2003 | 2002 | 2001 |
|---|---|---|---|
| Accounts receivable | $300,000 | $260,000 | $220,000 |
| Allowance for bad debts | 18,000 | 17,000 | 16,000 |

Did the creditworthiness of Happy Tiny s customers increase or decrease between 2001 and 2003? Explain.

## EXERCISE 6-19 ACCOUNTING FOR WARRANTIES

Rick Procter, president of Sharp Television Stores, has been concerned recently about declining sales due to increased competition in the area. Rick has noticed that many of the national stores selling television sets and appliances have been placing heavy emphasis on warranties in their marketing programs. In an effort to revitalize sales, Rick has decided to offer free service and repairs for one year as a warranty on his television sets. Based on experience, Rick believes that first-year service and repair costs on the television sets will be approximately 5% of sales. The first month of operations following the initiation of Rick s new marketing plan showed significant increases in sales of TV sets. Total sales of TV sets for the first three months under the warranty plan were $10,000, $8,000, and $12,000, respectively.

1. Assuming that Rick prepares adjusting entries and financial statements for his own use at the end of each month, prepare the appropriate entry to recognize customer service (warranty) expense for each of these first three months.
2. Prepare the appropriate entry to record services provided to repair sets under warranty in the second month, assuming that the following costs were incurred: labor (paid in cash), $550; supplies, $330.

## EXERCISE 6-20 ACCOUNTING FOR WARRANTIES

Johnson Auto sells used cars and trucks. During 2003, it sold 51 cars and trucks for a total of $1,350,000. Johnson provides a 12-month, 12,000-mile warranty on the used cars and trucks sold. Johnson estimates that it will cost $25,000 in labor and $13,000 in parts to service (during the following year) the cars and trucks sold in 2003.

In January 2004, Steve Martin brought his truck in for warranty repairs. Johnson Auto fixed the truck under its warranty agreement. It cost Johnson $400 in labor and $275 in parts

to fix Steve Martin s truck. Prepare the journal entries to record (1) Johnson Auto s estimated customer service liability as of December 31, 2003, and (2) the costs incurred in repairing the truck in January 2004.

expanded material

## EXERCISE 6-21

### PREPARING A BANK RECONCILIATION

Prepare a bank reconciliation for Oldroyd Company at January 31, 2003, using the information shown.

1. Cash per the accounting records at January 31 amounted to $72,802; the bank statement on this same date showed a balance of $64,502.
2. The canceled checks returned by the bank included a check written by the Oldham Company for $1,764 that had been deducted from Oldroyd s account in error.
3. Deposits in transit as of January 31, 2003, amounted to $10,928.
4. The following amounts were adjustments to Oldroyd Company s account on the bank statement:
   a. Service charges of $26.
   b. An NSF check of $1,400.
   c. Interest earned on the account, $40.
5. Checks written by Oldroyd Company that have not yet cleared the bank include four checks totaling $5,778.

## EXERCISE 6-22

### PREPARING A BANK RECONCILIATION

The records of Denna Corporation show the following bank statement information for December:

a. Bank balance, December 31, 2003, $87,450
b. Service charges for December, $50
c. Rent collected by bank, $1,000
d. Note receivable collected by bank (including $300 interest), $2,300
e. December check returned marked NSF (check was a payment of an account receivable), $200
f. Bank erroneously reduced Denna s account for a check written by Dunna Company, $1,000
g. Cash account balance, December 31, 2003, $81,200
h. Outstanding checks, $9,200
i. Deposits in transit, $5,000

1. Prepare a bank reconciliation for December.
2. Prepare the entry to correct the cash account as of December 31, 2003.

## EXERCISE 6-23

### RECONCILING BOOK AND BANK BALANCES

Jensen Company has just received the September 30, 2003, bank statement summarized in the following schedule:

| | Charges | Deposits | Balance |
|---|---|---|---|
| Balance, September 1 | | | $ 5,100 |
| Deposits recorded during September | | $27,000 | 32,100 |
| Checks cleared during September | $27,300 | | 4,800 |
| NSF check, J. J. Jones | 50 | | 4,750 |
| Bank service charges | 10 | | 4,740 |
| Balance, September 30 | | | 4,740 |

Cash on hand (recorded on Jensen s books but not deposited) on September 1 and September 30 amounted to $200. There were no deposits in transit or checks outstanding at September 1, 2003. The cash account for September reflected the following:

**Cash**

| | | | |
|---|---|---|---|
| Sept. 1 Balance | 5,300 | Sept. Checks | 28,000 |
| Sept. Deposits | 29,500 | | |

Answer the following questions. (Hint: It may be helpful to prepare a complete bank reconciliation.)

1. What is the ending balance per the cash account before adjustments?
2. What adjustments should be added to the depositor s books?
3. What is the total amount of the deductions from the depositor s books?
4. What is the total amount to be added to the bank s balance?
5. What is the total amount to be deducted from the bank s balance?

## EXERCISE 6-24

### JOURNAL ENTRIES FOR NOTES RECEIVABLE

Prepare journal entries for the following transactions for Stansworth Plumbing for 2003:

July 1 Installed a sprinkling system for Chuck s Engineering and billed $12,600 for the job.
Sept. 1 Chuck s had not yet paid for the sprinkling system. Stansworth agreed to accept a three-month note for the full amount with interest at an annual rate of 14%.
Dec. 1 Chuck s Engineering paid the note in full.

## EXERCISE 6-25

### FACTORING RECEIVABLES AND BORROWING MONEY

Nixon Enterprises is experiencing a temporary shortage of cash. To cover the shortage, the financial vice president of the company proposed that some of the company s accounts receivable be sold (factored). A factoring company has offered to buy up to $2 million of the company s receivables on a without recourse basis at a fee of 16% of the amount factored.

As an alternative, another vice president of the company has proposed borrowing an equivalent amount from South Willow Bank, pledging the outstanding receivables as collateral for the loan. Under the terms of the borrowing agreement, Nixon Enterprises would receive 80% of the value of all receivables assigned to the bank and would be charged a 1% loan origination (service) fee based on the actual dollar amount of cash received and 12% annual interest on the outstanding loan. The company estimates that the loan will be repaid in two months.

Evaluate the two alternatives. Which one is better from the company s perspective?

## EXERCISE 6-26

### ACCOUNTING FOR NOTES RECEIVABLE

Escondido Company frequently sells merchandise on promissory notes. The following transactions relate to one such note:

Feb. 1 Sold merchandise for $9,000 to Marta Tabor; accepted a 6-month, 11% note.
Aug. 1 On this date (due date of the note), Marta Tabor did not make payment.
Oct. 1 Collected the maturity value (principal plus interest as of August 1) of the note from Marta Tabor, together with 15% interest on the maturity value from August 1.

Prepare the journal entries to record the above transactions.

## EXERCISE 6-27

### FOREIGN CURRENCY TRANSACTION

Rabona Slice, a U.S. company, sold 100,000 cases of tropical fruit to Ben Thanh Market, a Vietnamese firm, for 2.5 billion Vietnamese dong. The sale was made on November 17, 2003, when one U.S. dollar equaled 14,000 dong. Payment of 2.5 billion Vietnamese dong was due to Rabona Slice on January 16, 2004. At December 31, 2003, one U.S. dollar equaled 15,000 dong, and on January 16, 2004, one U.S. dollar equaled 15,600 dong.

1. What will be the value of the accounts receivable on December 31, 2003, in Vietnamese dong?

2. What will be the value of the accounts receivable on December 31, 2003, in U.S. dollars?
3. Will Rabona Slice recognize an exchange gain or loss at December 31, 2003? Explain.
4. Will Rabona Slice recognize an exchange gain or loss on January 16, 2004? Explain.
5. In connection with this sale, what amount will Rabona Slice report as Sales Revenue in its income statement for 2003?
6. In connection with this sale, what amount will Rabona Slice report as Cash Collected from Customers in its statement of cash flows for 2004?

## EXERCISE 6-28

### FOREIGN CURRENCY TRANSACTION

American, Inc., sells one widget to Japanese Company at an agreed-upon price of 1,000,000 yen. On the day of the sale, one yen is equal to $0.01. American, Inc., maintains its accounting records in U.S. dollars. Therefore, the amount in yen must be converted to U.S. dollars.

1. Provide the journal entry that would be made by American, Inc., on the day of the sale, assuming Japanese Company pays for the widget on the day of the sale.
2. Most sales are on account, meaning that payment will not be received for 30 days or even longer. What issues will arise for American, Inc., if the sale is made with payment due in 30 days? (Hint: What might happen to the value of the yen in relation to the dollar during the 30-day period?)
3. Suppose that 30 days from the date of the sale the value of one yen is equal to $0.008. What journal entry would be made when the 1,000,000 yen are received by American, Inc.?

# problems

## PROBLEM 6-1

### RECOGNIZING REVENUE

Brad Company sells ships. Each ship sells for over $25 million. Brad never starts building a ship until it receives a specific order from a customer. Brad usually takes about four years to build a ship. After construction is completed and during the first three years the customer uses the ship, Brad agrees to repair anything on the ship free of charge. The customers pay for the ships over a period of ten years after the date of delivery.

Brad Company is considering the following alternatives for recognizing revenue from its sale of ships:

a. Recognize revenue when Brad receives the order to do the job.
b. Recognize revenue when Brad begins the work.
c. Recognize revenue proportionately during the four-year construction period.
d. Recognize revenue immediately after the customer takes possession of the ship.
e. Wait until the three-year guarantee period is over before recognizing any revenue.
f. Wait until the ten-year payment period is over before recognizing any revenue.

*Required:*

1. Which of the methods, (a) through (f), should Brad use to recognize revenue? Support your answer.
2. **Interpretive Question:** A member of Congress has introduced a bill that would require the SEC to crack down on lenient revenue recognition practices by shipbuilding companies. This bill would require Brad Company to use method (f) above. The logic behind the congressperson s bill is that no revenue should ever be recognized until the complete amount of cash is in hand. You have been hired as a lobbyist by Brad Company to speak against this bill. What arguments would you use on Capitol Hill to sway representatives to vote against this bill?

## PROBLEM 6-2

### RECOGNIZING REVENUE

The Ho Man Tin Tennis Club sells lifetime memberships for $20,000 each. A lifetime membership entitles a person to unlimited access to the club s tennis courts, weight room, exercise

equipment, and swimming pool. Once a lifetime membership fee is paid, it is not refundable for any reason.

Judy Chan and her partners are the owners of Ho Man Tin Tennis Club. In order to overcome a cash shortage, they intend to seek investment funds from new partners. Judy and her partners are meeting with their accountant to provide information for preparation of financial statements. They are considering when they should recognize revenue from the sale of lifetime memberships.

*Required:* Answer the following questions:

1. When should the lifetime membership fees be recognized as revenue? Remember, they are nonrefundable.
2. **Interpretive Question:** What incentives would Judy and her partners have for recognizing the entire amount of the lifetime membership fee as revenue at the time it is collected? Since the entire amount will ultimately be recognized anyway, what difference does the timing make?

## PROBLEM 6-3 SALES TRANSACTIONS

Company R and Company S entered into the following transactions:

a. Company R sold merchandise to Company S for $40,000, terms 2/10, n/30.
b. Prior to payment, Company S returned $3,000 of the merchandise for credit.
c. Company S paid Company R in full within the discount period.
d. Company S paid Company R in full after the discount period. [Assume that transaction (c) did not occur.]

*Required:* Prepare journal entries to record the transactions for Company R (the seller).

## PROBLEM 6-4 CASH FRAUD

Mac Faber was the controller of the Lewiston National Bank. In his position of controller, he was in charge of all accounting functions. He wrote cashier s checks for the bank and reconciled the bank statement. He alone could approve exceptions to credit limits for bank customers, and even the internal auditors reported to him. Unknown to the bank, Mac had recently divorced and was supporting two households. In addition, many of his personal investments had soured, including a major farm implement dealership that had lost $40,000 in the last year. Several months after Mac had left the bank for another job, it was discovered that a vendor had paid twice and that the second payment had been deposited in Mac s personal account. Because Mac was not there to cover his tracks (as he had been on previous occasions), an investigation ensued. It was determined that Mac had used his position in the bank to steal $117,000 over a period of two years. Mac was prosecuted and sentenced to 30 months in a federal penitentiary.

*Required:*
1. What internal control weaknesses allowed Mac to perpetrate the fraud?
2. What motivated Mac to perpetrate the fraud?

## PROBLEM 6-5 ANALYSIS OF ALLOWANCE FOR BAD DEBTS

Boulder View Corporation accounts for uncollectible accounts receivable using the allowance method.

As of December 31, 2002, the credit balance in Allowance for Bad Debts was $130,000. During 2003, credit sales totaled $10,000,000, $90,000 of accounts receivable were written off as uncollectible, and recoveries of accounts previously written off amounted to $15,000. An aging of accounts receivable at December 31, 2003, showed the following:

| Classification of Receivable | Accounts Receivable Balance as of December 31, 2003 | Percentage Estimated Uncollectible |
|---|---|---|
| Current | $1,140,000 | 2% |
| 1 30 days past due | 600,000 | 10 |
| 31 60 days past due | 400,000 | 23 |
| Over 60 days past due | 120,000 | 75 |
| | $2,260,000 | |

*Required:*

1. Prepare the journal entry to record bad debt expense for 2003, assuming bad debts are estimated using the aging of receivables method.
2. Record journal entries to account for the actual write-off of $90,000 uncollectible accounts receivable and the collection of $15,000 in receivables that had previously been written off.

## PROBLEM 6-6

### ACCOUNTING FOR ACCOUNTS RECEIVABLE

Assume that Dome Company had the following balances in its receivable accounts on December 31, 2002:

| | | |
|---|---|---|
| Accounts receivable | $400,000 | |
| Allowance for bad debts | 10,200 | (credit balance) |

Transactions during 2003 were as follows:

| | |
|---|---|
| Gross credit sales | $1,600,000 |
| Collections of accounts receivable ($1,560,000 less cash discounts of $20,000) | 1,540,000 |
| Sales returns and allowances (from credit sales) | 10,000 |
| Accounts receivable written off as uncollectible | 6,000 |
| Balance in Allowance for Bad Debts on December 31, 2003 (based on percent of total accounts receivable) | 12,000 |

*Required:*

1. Prepare entries for the 2003 transactions.
2. What amount will Dome Company report for:
   a. Net sales in its 2003 income statement?
   b. Total accounts receivable on its balance sheet of December 31, 2003?

## PROBLEM 6-7

### ANALYSIS OF RECEIVABLES

Juniper Company was formed in 1993. Sales have increased on the average of 5% per year during its first ten years of existence, with total sales for 2002 amounting to $400,000. Since incorporation, Juniper Company has used the allowance method to account for uncollectible accounts receivable.

On January 1, 2003, the company s Allowance for Bad Debts had a credit balance of $5,000. During 2003, accounts totaling $3,500 were written off as uncollectible.

*Required:*

1. What does the January 1, 2003, credit balance of $5,000 in Allowance for Bad Debts represent?
2. Since Juniper Company wrote off $3,500 in uncollectible accounts receivable during 2003, was the prior year s estimate of uncollectible accounts receivable overstated?
3. Prepare journal entries to record:
   a. The $3,500 write-off of receivables during 2003.
   b. Juniper Company s 2003 bad debt expense, assuming an aging of the December 31, 2003, accounts receivable indicates that potential uncollectible accounts at year-end total $9,000.

## PROBLEM 6-8

### COMPUTING AND RECORDING BAD DEBT EXPENSE

During 2003, Wishbone Corporation had a total of $5,000,000 in sales, of which 80% were on credit. At year-end, the Accounts Receivable balance showed a total of $2,300,000, which had been aged as follows:

| Age | Amount |
|---|---|
| Current | $1,900,000 |
| 1 30 days past due | 200,000 |
| 31 60 days past due | 100,000 |
| 61 90 days past due | 70,000 |
| Over 90 days past due | 30,000 |
| | $2,300,000 |

Prepare the journal entry required at year-end to record the bad debt expense under each of the following independent conditions. Assume, where applicable, that Allowance for Bad Debts had a credit balance of $5,500 immediately before these adjustments.

*Required:*

1. Use the direct write-off method. (Assume that $60,000 of accounts are determined to be uncollectible and are written off in a single year-end entry.)
2. Based on experience, uncollectible accounts existing at year-end are estimated to be 3% of total accounts receivable.
3. Based on experience, uncollectible accounts are estimated to be the sum of:

   1% of current accounts receivable
   6% of accounts 1 30 days past due
   10% of accounts 31 60 days past due
   20% of accounts 61 90 days past due
   30% of accounts over 90 days past due

## PROBLEM 6-9

### UNIFYING CONCEPTS: AGING OF ACCOUNTS RECEIVABLE AND UNCOLLECTIBLE ACCOUNTS

Delta Company has found that, historically, 0.5% of its current accounts receivable, 1% of accounts 1 to 30 days past due, 1.5% of accounts 31 to 60 days past due, 3% of accounts 61 to 90 days past due, and 10% of accounts over 90 days past due are uncollectible. The following schedule shows an aging of the accounts receivable as of December 31, 2003:

| | | Days Past Due | | | |
|---|---|---|---|---|---|
| | Current | 1 30 | 31 60 | 61 90 | Over 90 |
| Balance | $45,600 | $9,850 | $4,100 | $850 | $195 |

The balances at December 31, 2003, in selected accounts are as follows. (Assume that the allowance method is used.)

| | |
|---|---|
| Sales revenue | $120,096 |
| Sales returns | 1,209 |
| Allowance for bad debts | 113 (credit balance) |

*Required:*

1. Given these data, make the necessary adjusting entry (or entries) for uncollectible accounts receivable on December 31, 2003.
2. On February 14, 2004, Lori Jacobs, a customer, informed Delta Company that she was going bankrupt and would not be able to pay her account of $46. Make the appropriate entry (or entries).
3. On June 29, 2004, Lori Jacobs was able to pay the amount she owed in full. Make the appropriate entry (or entries).

4. Assume that Allowance for Bad Debts at December 31, 2003, had a debit balance of $113 instead of a credit balance of $113. Make the necessary adjusting journal entry that would be needed on December 31, 2003.

## PROBLEM 6-10

### ESTIMATING UNCOLLECTIBLE ACCOUNTS

Ulysis Corporation makes and sells clothing to fashion stores throughout the country. On December 31, 2003, before adjusting entries were made, it had the following account balances on its books:

| | |
|---|---|
| Accounts receivable | $ 2,320,000 |
| Sales revenue, 2003 (60% were credit sales) | 16,000,000 |
| Allowance for bad debts (credit balance) | 4,000 |

*Required:*

1. Make the appropriate adjusting entry on December 31, 2003, to record the allowance for bad debts if uncollectible accounts receivable are estimated to be 3% of accounts receivable.
2. Make the appropriate adjusting entry on December 31, 2003, to record the allowance for bad debts if uncollectible accounts receivable are estimated on the basis of an aging of accounts receivable; the aging schedule reveals the following:

| | Balance of Accounts Receivable | Percent Estimated to Become Uncollectible |
|---|---|---|
| Current | $1,200,000 | 0.5% |
| 1 30 days past due | 800,000 | 1 |
| 31 60 days past due | 200,000 | 4 |
| 61 90 days past due | 80,000 | 20 |
| Over 90 days past due | 40,000 | 30 |

3. Now assume that on March 3, 2004, it was determined that a $64,000 account receivable from Petite Corners is uncollectible. Record the bad debt, assuming:
   a. The direct write-off method is used.
   b. The allowance method is used.
4. Further assume that on June 4, 2004, Petite Corners paid this previously written-off debt of $64,000. Record the payment, assuming:
   a. The direct write-off method had been used on March 3 to record the bad debt.
   b. The allowance method had been used on March 3 to record the bad debt.
5. **Interpretive Question:** Which method of accounting for bad debts, direct write-off or allowance, is generally used? Why?

## PROBLEM 6-11

### THE AGING METHOD

The following aging of accounts receivable is for Coby Company at the end of 2003:

**Aging of Accounts Receivable**
**December 31, 2003**

| | Overall | Less Than 30 Days | 31 to 60 Days | 61 to 90 Days | Over 90 Days |
|---|---|---|---|---|---|
| Travis Campbell | $ 50,000 | $ 40,000 | $ 5,000 | $ 2,000 | $ 3,000 |
| Linda Reed | 35,000 | 31,000 | 4,000 | | |
| Jack Riding | 110,000 | 100,000 | 10,000 | | |
| Joy Riddle | 20,000 | 3,000 | 10,000 | 4,000 | 3,000 |
| Afzal Shah | 90,000 | 60,000 | 21,000 | 4,000 | 5,000 |
| Edna Ramos | 80,000 | 60,000 | 16,000 | | 4,000 |
| Totals | $385,000 | $294,000 | $66,000 | $10,000 | $15,000 |

Coby Company had a credit balance of $20,000 in its allowance for bad debts account at the beginning of 2003. Write-offs for the year totaled $16,500. Coby Company makes only one adjusting entry to record bad debt expense at the end of the year. Historically, Coby Company has experienced the following with respect to the collection of its accounts receivable:

| Age of Account | Percentage Ultimately Uncollectible |
|---|---|
| Less than 30 days | 1% |
| 31 60 days | 5 |
| 61 90 days | 30 |
| Over 90 days | 90 |

*Required:*

1. Compute the appropriate balance of allowance for bad debts as of December 31, 2003.
2. Make the journal entry required to record this allowance for bad debts balance. Remember that the allowance account already has an existing balance.
3. What is Coby s net accounts receivable balance as of December 31, 2003?

## PROBLEM 6-12 ANALYSIS OF ACCOUNTS RECEIVABLE QUANTITY AND QUALITY

The following accounts receivable information is for MaScare Company:

| | 2003 | 2002 | 2001 |
|---|---|---|---|
| Accounts receivable | $100,000 | $ 30,000 | $ 50,000 |
| Allowance for bad debts | 4,000 | 2,000 | 3,000 |
| Sales revenue | 210,000 | 180,000 | 170,000 |

*Required:*

1. With the big increase in the Allowance for Bad Debts in 2003, MaScare Company is concerned that the creditworthiness of its customers declined from 2002 to 2003. Is there any support for this view in the accounts receivable data? Explain.
2. **Interpretive Question:** Is there any cause for alarm in the accounts receivable data for 2003? Explain.

expanded material

## PROBLEM 6-13 PREPARING A BANK RECONCILIATION

Milton Company has just received the following monthly bank statement for June 2003.

| Date | Checks | Deposits | Balance |
|---|---|---|---|
| June 01 | | | $25,000 |
| June 02 | $ 150 | | 24,850 |
| June 03 | | $ 6,000 | 30,850 |
| June 04 | 750 | | 30,100 |
| June 05 | 1,500 | | 28,600 |
| June 07 | 8,050 | | 20,550 |

(*continued*)

| Date | Checks | Deposits | Balance |
|---|---|---|---|
| June 09 | | $ 8,000 | $28,550 |
| June 10 | $ 3,660 | | 24,890 |
| June 11 | 2,690 | | 22,200 |
| June 12 | | 9,000 | 31,200 |
| June 13 | 550 | | 30,650 |
| June 17 | 7,500 | | 23,150 |
| June 20 | | 5,500 | 28,650 |
| June 21 | 650 | | 28,000 |
| June 22 | 700 | | 27,300 |
| June 23 | | 4,140 | 31,440 |
| June 25 | 1,000 | | 30,440 |
| June 30 | 50* | | 30,390 |
| Totals | $27,250 | $32,640 | |

*Bank service charge.
Note collected, including $140 interest.

Data from the cash account of Milton Company for June are as follows:

| | | | |
|---|---|---|---|
| June 1 balance | $20,440 | | |
| **Checks written:** | | **Deposits:** | |
| June 1 | $ 1,500 | June 2 | $ 6,000 |
| 4 | 8,500 | 5 | 8,000 |
| 6 | 2,690 | 10 | 9,000 |
| 8 | 550 | 18 | 5,500 |
| 9 | 7,500 | 30 | 6,000 |
| 12 | 650 | | $34,500 |
| 19 | 700 | | |
| 22 | 1,000 | | |
| 26 | 1,300 | | |
| 27 | 1,360 | | |
| | $25,750 | | |

At the end of May, Milton had three checks outstanding for a total of $4,560. All three checks were processed by the bank during June. There were no deposits outstanding at the end of May. It was discovered during the reconciliation process that a check for $8,050, written on June 4 for supplies, was improperly recorded on the books as $8,500.

*Required:*

1. Determine the amount of deposits in transit at the end of June.
2. Determine the amount of outstanding checks at the end of June.
3. Prepare a June bank reconciliation.
4. Prepare the journal entries to correct the cash account.
5. **Interpretive Question:** Why is it important that the cash account be reconciled on a timely basis?

## PROBLEM 6-14 DETERMINING WHERE THE CASH WENT

Kim Lee, the bookkeeper for Briton Company, had never missed a day s work for the past ten years until last week. Since that time, he has not been located. You now suspect that Kim may have embezzled money from the company. The following bank reconciliation, prepared by Kim last month, is available to help you determine if a theft occurred:

**Briton Company**
**Bank Reconciliation for August 2003**
**Prepared by Kim Lee**

| | | | |
|---|---|---|---|
| Balance per bank statement | $192,056 | Balance per books | $169,598 |
| *Additions to bank balance:* | | *Additions to book balance:* | |
| Deposits in transit | 8,000 | Note collected by bank | 250 |
| | | Interest earned | 600 |
| *Deductions from bank balance:* | | *Deductions from book balance:* | |
| Outstanding checks: | | NSF check | (1,800) |
| #201 | (19,200) | Bank service charges | (48) |
| #204 | (5,000) | | |
| #205 | (4,058) | | |
| #295 | (195) | | |
| #565 | (1,920) | | |
| #567 | (615) | | |
| #568 | (468) | | |
| **Adjusted bank balance** | **$168,600** | **Adjusted book balance** | **$168,600** |

In examining the bank reconciliation, you decide to review canceled checks returned by the bank. You find that check stubs for check nos. 201, 204, 205, and 295 indicate that these checks were supposedly voided when written. All other bank reconciliation data have been verified as correct.

*Required:*

1. Compute the amount suspected stolen by Kim.
2. **Interpretive Question:** Describe how Kim accounted for the stolen money. What would have prevented the theft?

## PROBLEM 6-15 ACCOUNTING FOR A NOTE RECEIVABLE

The following information is for Lyman Irrigation Company:

Mar. 1 Sold sprinkling pipe to Federated Farms for $16,000, terms 2/10, n/30 (omit entries for cost of goods sold or inventory).
Mar. 12 Accepted a $16,000, three-month, 10% note from Federated Farms in payment of its account.
June 12 Collected the note plus interest.

*Required:*

1. Prepare journal entries for the transactions.
2. **Interpretive Question:** What would be the purpose of Lyman discounting the note at a bank on April 30?

## PROBLEM 6-16 ACCOUNTING FOR A NOTE RECEIVABLE

On May 1, your company accepted a $24,000, three-month, 12% note from a customer in exchange for services rendered.

*Required:*

1. As the accountant for the company, prepare an appropriate journal entry to record the acceptance of the note.
2. On August 1, the customer notified you that the note amount could not be repaid until October 1. You agreed on a new, two-month note with an interest rate of 18%. The face amount of this note includes the principal and accrued interest on the original note. Prepare the appropriate journal entry on August 1.
3. Prepare the appropriate entry to record the collection in full of the note plus interest on October 1.

## PROBLEM 6-17 ACCOUNTING FOR A FOREIGN CURRENCY TRANSACTION

On December 19, 2003, Mr. Kitty Company performed services for Cartour Company. The contracted price for the services was 20,000 euros, to be paid on March 23, 2004. On Decem-

*Required:*

ber 19, 2003, one euro equaled $0.94. On December 31, 2003, one euro equaled $0.98, and on March 23, 2004, one euro equaled $0.91. Mr. Kitty is a U.S. company.

1. Make the journal entry on Mr. Kitty s books to record the provision of services on December 19, 2003.
2. Make the necessary adjusting entry on Mr. Kitty s books on December 31 to adjust the account receivable to its appropriate U.S. dollar value.
3. Make the journal entry on Mr. Kitty s books to record the collection of the 20,000 euros on March 23.
4. **Interpretive Question:** Why would Mr. Kitty, a U.S. company, agree to denominate the contract in euros instead of in U.S. dollars?

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***Analyzing 6-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** is included in Appendix A. Locate that annual report and consider the following questions:

1. Provide the summary journal entry that Microsoft would have made to record its revenue for the fiscal year ended June 30, 1999 (assume all sales were on account).
2. Given Microsoft s beginning and ending balances in accounts receivable, along with your journal entry from Part 1, estimate the amount of cash collected from customers during the year.
3. Notice that Microsoft has an unearned revenue account. The balance in that account increased from 1998 to 1999. Provide the summary journal entry that was made to record that increase.
4. Locate Microsoft s note on revenue recognition. What is Microsoft s revenue recognition policy?

***Analyzing 6-2 (Bank of America)***

**BANK OF AMERICA** is one of the oldest banks in America, as well as one of the largest. Founded in the late 1800s, Bank of America has grown from a strictly California-based bank to one with operations in over 20 states. Information from Bank of America s annual report follows. (Amounts are in millions.)

| | 1999 | 1998 |
|---|---|---|
| Bad debt expense | $1,820 | $2,920 |
| Write-off of uncollectible accounts | 2,582 | 3,050 |
| Allowance for bad debts (year-end) | 6,828 | 7,122 |

Using this information, answer the following questions:

1. Provide the journal entry made by Bank of America to record bad debt expense for 1999.
2. Provide the journal entry made by Bank of America to record the write-off of actual bad debts during 1999.
3. Estimate the amount of bad debts previously written off that Bank of America recovered in 1999.

***Analyzing 6-3 (Microsoft and IBM)***

Information from comparative income statements and balance sheets for **MICROSOFT** and **IBM** is given below. (Amounts are in millions.)

| | Microsoft | | IBM | |
|---|---|---|---|---|
| | 1999 | 1998 | 1999 | 1998 |
| Sales | $19,747 | $15,262 | $87,548 | $81,667 |
| Accounts receivable | 2,245 | 1,460 | 20,039 | 18,958 |

Use this information to answer the following questions:

1. Compute Microsoft s average collection period for 1999.
2. Compute IBM s average collection period for 1999.
3. Why do you think these two very profitable companies can have such large differences in their average collection period?

## INTERNATIONAL CASE

***Samsung***

The economic downturn in South Korea in late 1997 focused world attention on what had heretofore been viewed as one of the world s economic powerhouses. Symptomatic of the economic collapse was the freefall in Korea s currency, the won, which declined in value from 845 won per U.S. dollar on December 31, 1996, to 1,695 won per dollar on December 31, 1997.

When Korea s economy soured, many sought to blame the economy s unusual structure, which concentrates a large fraction of the economic activity in the hands of just a few companies, called *chaebol*. *Chaebol* are large Korean conglomerates (groups of loosely connected firms with central ownership) that are usually centered around a family-owned parent company. The growth of the *chaebol* in the years since the Korean War has been aided by government nurturing it is said that the *chaebol* have received government assistance in getting loans and obtaining trading licenses, for example.

In Korea there are now four super-*chaebol* **HYUNDAI**, **SAMSUNG**, **DAEWOO**, and **LUCKY GOLDSTAR**. Collectively, these four conglomerates account for between 40 and 45% of South Korea s gross national product.

Samsung, one of the four super-*chaebol*, was founded in 1938 in Taegu, Korea. The company had humble beginnings; its original products included

fruit, dried seafood, flour, and noodles, and its original exports were squid and apples. Now, Samsung has a worldwide presence in electronics, machinery, automobiles, chemicals, and financial services. To illustrate the size of Samsung s operations, it is estimated that one out of every five televisions or monitors in the world was made by Samsung.

The following information is from Samsung s 1997 annual report. All numbers are in trillions of Korean won.

| | 1997 | 1996 |
|---|---|---|
| Net sales | 91.519 | 74.641 |
| Accounts receivable | 10.064 | 6.233 |

1. Did Samsung s sales increase in 1997, relative to 1996, in terms of U.S. dollars? Explain. What exchange rate information would allow you to make a more accurate calculation?
2. Compute Samsung s average collection period for both 1996 and 1997. Instead of using the average accounts receivable balance, use the end-of-year balance.
3. Comment on the change in the average collection period from 1996 to 1997, especially in light of the economic conditions in Korea in 1997.
4. What do you think happened to Samsung s accounts payable balance in 1997, relative to 1996? Explain.

## ETHICS CASE

***Changing Our Estimates in Order to Meet Analysts Expectations***

John Verner is the controller for BioMedic, Inc., a biotechnology company. John is finishing his preparation of the preliminary financial statements for a meeting of the board of directors scheduled for later in the day. At the board s prior meeting, members discussed the need to report earnings of at least $1.32 per share. It was not mentioned specifically at the meeting, but everyone on the board knows that financial analysts have forecast that BioMedic will report earnings per share (EPS) of $1.32; failure to meet analysts expectations could hurt BioMedic s chances of going forward with its planned initial public offering (IPO) later this year.

Unfortunately for John and the company, the preliminary EPS figure is coming up short. John knows that the board will take a serious look at the estimates and assumptions made in preparing the income statement. In anticipation of the board s review, John has identified the following two issues:

1. In the past, bad debt expense has been computed using the percentage of sales method. The percentage used has varied between 3 and 3.5%. This year, John assumed a rate of 3%. If he were to modify his estimate of bad debt expense to 2.5% of sales, income would increase by $700,000.
2. BioMedic, Inc., offers a warranty on many of the products it sells. Like bad debt expense, warranty expense is computed as a percentage of sales. John is considering modifying his estimate of warranty expense from 1.4% of sales down to 1.1%. This modification would result in a $420,000 increase in net income.

These two changes, considered together, would result in BioMedic being able to report EPS of $1.33 per share, thereby allowing the company to publicly an-

nounce that it had exceeded analysts expectations. Without these changes, BioMedic will report EPS of $1.21 per share.

What issues should John consider before he makes the changes to the income statement? Would John be doing something wrong by making these changes? Would John be breaking the law?

## WRITING ASSIGNMENT

***Revenue Recognition for Health Clubs***

The health fitness business has become increasingly popular as the sedentary lifestyle of most Americans has caused a large percentage of the population to feel, and be, out of shape. Health clubs have popped up all over, and with these clubs come some interesting accounting issues. Members typically sign up for one year and pay an up-front fee, followed by a monthly payment. The up-front fee covers, among other things, a health assessment by a club expert as well as a customized training program. For the monthly fee, members get the use of the facilities. The big accounting question is: How should the up-front fee be accounted for? Can the entire amount of the up-front fee be recognized at the beginning of the contract, or should it be recognized over the course of the year? Prepare a one-page paper explaining your point of view.

## THE DEBATE

***Bad Debt Expense: Relevance Versus Reliability***

When it comes to recognizing bad debt expense, the allowance method is used because it complies with the matching principle (e.g., expenses are matched with revenues in the period in which those revenues are earned). However, the allowance method requires estimation, and the estimates may not be reliable. An alternative is to use the direct write-off method. Under the direct write-off method, when a receivable is deemed worthless it is written off, and the bad debt expense is recognized at that time. This method requires no estimates and is thus more reliable.

Divide your group into two teams.

One team represents The Direct Write-Off Method. Prepare a two-minute oral argument supporting the use of this method.

The other team represents The Allowance Method. Prepare a two-minute presentation supporting your position.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignments given in earlier chapters. If you completed those spreadsheets, you have a head start on this one. If needed, review the spreadsheet assignment for Chapter 4 to refresh your memory on how to construct forecasted financial statements.

1. Handyman wishes to prepare a forecasted balance sheet and income statement for 2004. Use the original financial statement numbers for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2] as the basis for the forecast, along with the following additional information:
   a. Sales in 2004 are expected to increase by 40% over 2003 sales of $700.
   b. In 2004, Handyman expects to acquire new property, plant, and equipment costing $80.

c. The $160 in other operating expenses reported in 2003 includes $5 of depreciation expense.
d. No new long-term debt will be acquired in 2004.
e. No cash dividends will be paid in 2004.
f. New short-term loans payable will be acquired in an amount sufficient to make Handyman s current ratio in 2004 exactly equal to 2.0.

Note: These statements were constructed as part of the spreadsheet assignment in Chapter 4; you can use that spreadsheet as a starting point if you have completed that assignment.

For this exercise, the current assets are expected to behave as follows:

i. Cash and inventory will increase at the same rate as sales.
ii. The forecasted amount of accounts receivable in 2004 is determined using the forecasted value for the average collection period. For simplicity, do the computations using the end-of-period accounts receivable balance instead of the average balance. The average collection period for 2004 is expected to be 14.08 days.

*Clearly state any additional assumptions that you make.*

2. Repeat (1), with the following change in assumptions:
   a. Average collection period is expected to be 9.06 days.
   b. Average collection period is expected to be 20.00 days.
3. Comment on the differences in the forecasted values of accounts receivable in 2004 under each of the following assumptions about the average collection period: 14.08 days, 9.06 days, and 20.00 days. Under which assumption will Handyman s forecasted cash flow from operating activities be higher? Explain.

## INTERNET SEARCH

***Yahoo!***

**YAHOO!** is one of the best-known Internet brand names in the world. Access Yahoo! s Web site at **http://www.yahoo.com** and answer the following questions. Sometimes Web addresses change, so if this address doesn t work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link.

1. On its home page, Yahoo! has a link to information about job openings at the company. Use that link to find out what kind of benefits Yahoo! offers its employees.
2. Look at the current job openings at Yahoo! and identify one opening in the general field of finance.
3. Yahoo! is proud of the proliferation of local Yahoos! based in foreign countries. List the Asian countries in which a local Yahoo! is currently in operation.
4. Search the Yahoo! press release archive to find the most recent announcement about quarterly financial results. What was Yahoo! s reported total revenue in the most recent quarter?

# Inventory

chapter

7

## learning objectives

After studying this chapter, you should be able to:

1. Identify what items and costs should be included in inventory and cost of goods sold.
2. Account for inventory purchases and sales using both a perpetual and a periodic inventory system.
3. Calculate cost of goods sold using the results of an inventory count and understand the impact of errors in ending inventory on reported cost of goods sold.
4. Apply the four inventory cost flow alternatives: specific identification, FIFO, LIFO, and average cost.
5. Use financial ratios to evaluate a company s inventory level.

**expanded material**

6. Analyze the impact of inventory errors on reported cost of goods sold.
7. Describe the complications that arise when LIFO or average cost is used with a perpetual inventory system.
8. Apply the lower-of-cost-or-market method of accounting for inventory.
9. Explain the gross margin method of estimating inventories.

**SEARS, ROEBUCK & COMPANY** began as the result of an inventory mistake. In 1886, a shipment of gold watches was mistakenly sent to a jeweler in Redwood Falls, Minnesota. When the jeweler refused to accept delivery of the unwanted watches, they were purchased by an enterprising railroad agent who saw an opportunity to make some money. Richard Sears sold all of those watches, ordered more, and started the **R. W. SEARS WATCH COMPANY**. The next year, Sears moved his operation to Chicago, where he found a partner in watchmaker Alvah Roebuck, and in 1893 they incorporated under the name Sears, Roebuck & Co.

The company s initial growth was fueled by mail-order sales to farmers. Sears bought goods in volume from manufacturers. Then, taking advantage of cheap parcel post and rural free delivery (RFD) rates, Sears shipped the goods directly to the customers, thereby bypassing the profit markups of the chain of middlemen usually standing between manufacturers and farmers. Sales growth was partially driven by the persuasive advertising copy written by Richard Sears for the famous Sears catalog. In fact, his product descriptions have been politely called fanciful. But the company compensated by backing its products with an unconditional money-back guarantee for dissatisfied customers.

The next wave of growth at Sears began in 1925 when the first Sears retail store was opened in Chicago. The shift from mail-order catalog sales to retail outlet sales paralleled the rise in popularity of the automobile in the United States. The automobile made it practical for rural customers to shop in the city. Reflecting the importance of the automobile, Sears pioneered the provision of free parking lots next to its stores. In the post World War II boom, Sears sales skyrocketed, leaving chief rival **MONTGOMERY WARD** far behind.

The 1980s was a decade of diversification at Sears. Actually, the diversification had begun in 1931 when Sears started selling **ALLSTATE** auto insurance, first by mail and then from its retail locations. In the 1980s, Sears acquired **DEAN WITTER**, a financial services firm, and **COLDWELL BANKER**, a real estate firm. In addition, Sears launched the Discover[fi] credit card and backed Prodigy[fi], the first widespread online service (a joint project with **IBM** and **CBS**).

In the early 1990s, the diversified Sears empire began to show increasing weakness, culminating in a reported loss of almost $2.3 billion in 1992. The company s management responded by going back to the basics of retail marketing. The financial services operations (including the Discover card) and the real estate operations (along with the famous Sears Tower in Chicago) were sold. Sears focused on clothing sales in its mall-based stores and appliance and automotive product sales in its off-the-mall stores. In addition, Sears returned to emphasizing its in-house Sears credit card. In 1999, almost half of all Sears sales were financed with the Sears credit card. During 1999, over 39 million people used the Sears card, and over 21 million owed Sears money as of the end of the year.

Sears is continuing to leverage one of its biggest assets its in-house brand names such as Kenmore and Craftsman. In fact, sales of Sears appliances and tools make up two-thirds of the company s annual revenue. Currently, Sears is the leader in appliance sales and outsells the next 12 competitors combined. Sears has also streamlined its purchasing, cut 30% of its dealer network, and is keeping more popular fashions in stock in its clothing department. This streamlining has resulted in higher inventory turnover. As a result of these changes and others, Sears stock price has risen from $15 per share in 1992 to as high as $50 per share in 1999.[1]

## setting the stage

*Like Sears, every business has products or services that it sells. Some companies, usually referred to as diversified companies or conglomerates, sell many unrelated products and services, just as Sears did in the 1980s. Other companies focus on a core set of products or services, as Sears did in the 1990s.*

*In Chapter 6, the focus was on revenues and receivables arising from the sale of products and services. In this chapter, the focus is on accounting for the products and services that are sold.*

1 This description is based on the Sears Company History at **http://www.sears.com**; Sears, Roebuck and Co., *International Directory of Company Histories*, Vol. 18 (Detroit: St. James Press, 1997), pp. 475 479.

*Exhibit 7-1 shows how the financial statements are affected by the material covered in this chapter. The inventory and accounts payable accounts on the balance sheet, cost of goods sold on the income statement, and payments for inventory on the statement of cash flows are discussed in this chapter.*

*Traditionally, companies have been divided into two groups: service companies and product companies. Companies such as hotels, cable TV networks, banks, carpet cleaners, and firms of lawyers, accountants, or engineers sell services. In contrast, supermarkets, steel mills, and book stores sell products. Because the practice of accounting evolved in a business environment dominated by manufacturing and merchandising firms, the accounting for service companies is significantly less developed than the accounting for companies that sell products. In this chapter we discuss traditional accounting for product companies, emphasizing cost of goods sold and inventory. In Chapter 8 we will discuss operating expenses that are common to both service and product firms. Further discussion of the developing area of accounting for service companies is included in Chapter 3 in the management accounting part of this text.*

STOP & THINK

The clear separation between product and service companies is disappearing. For example, does **MICROSOFT** sell a product or a service? What about **MCDONALD S** product or service?

*Inventory accounting is considerably more complex for manufacturing firms than for merchandising firms. In a retail or wholesale business, the cost of goods sold is simply the costs incurred in purchasing the merchandise sold during the period; inventory is simply the cost of products purchased and not yet sold. Manufacturing firms, however, produce the goods they sell, so inventory and cost of goods sold must include all manufacturing costs of the products produced and sold. Because it is much easier to understand the concept of inventory and cost of goods sold in the context of retail and wholesale firms, manufacturing firms will not be considered in detail in this chapter. The details of inventory accounting for manufacturing firms will be covered in Chapter 2 in the management accounting part of this text.*

*Fifty years ago, inventory was arguably the most important asset on the balance sheet. However, changes in the economy have led to a decrease in the relative importance of inventory. For example, as illustrated in Exhibit 7-2, inventory for the 50 largest companies in the United States declined steadily from 15.4% of total assets in 1987 to 7.4% of total assets in 1998. This trend is a*

**exhibit 7-1** Financial Statement Items Covered in This Chapter

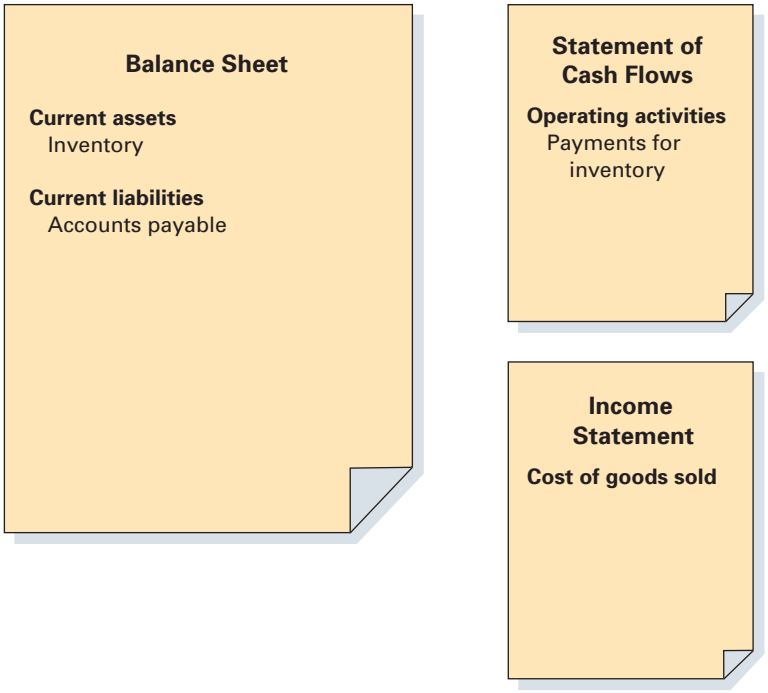
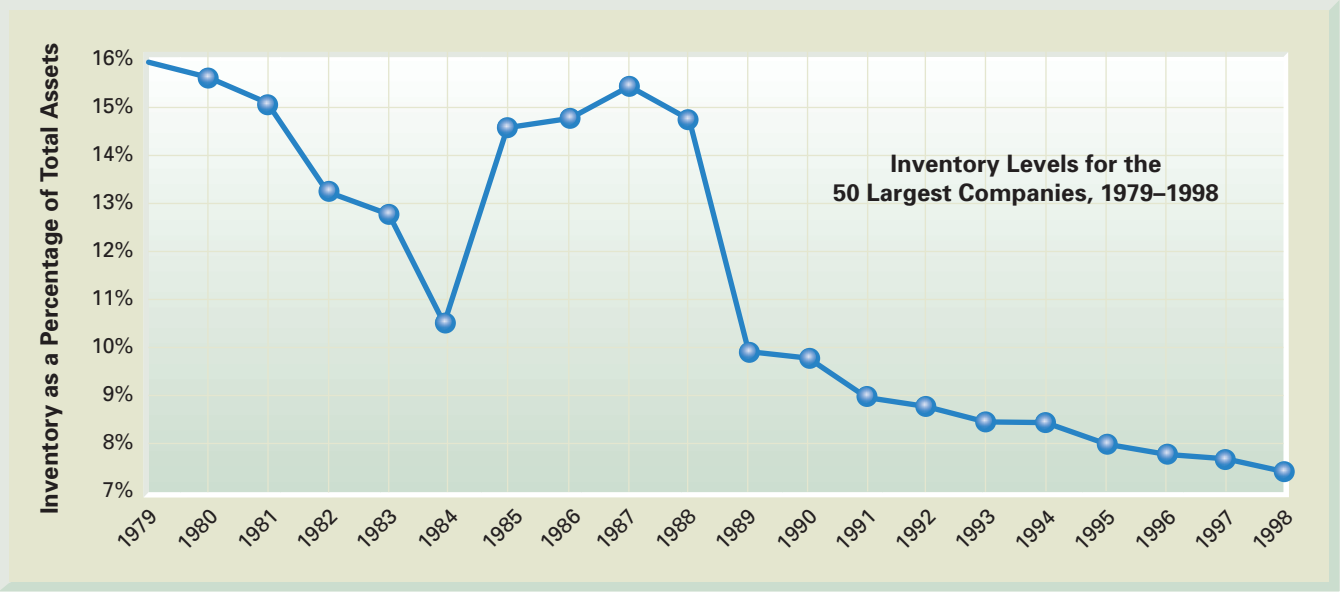


exhibit 7-2 How Much Inventory Do Companies Have?




**Source:** Standard and Poor's *COMPUSTAT.*

*result of two factors: more efficient management of inventory because of improved information technology and a decrease in the prominence of old-style, smokestack industries that carried large inventories. Companies in the growth industries of services, technology, and information often have little or no inventory.*

## 1

Identify what items and costs should be included in inventory and cost of goods sold.

**inventory** Goods held for resale.

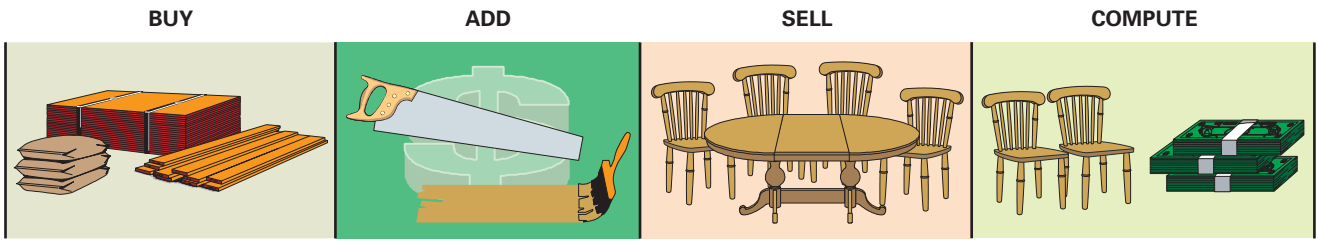
**cost of goods sold** The expenses incurred to purchase or manufacture the merchandise sold during a period.

## INVENTORY AND COST OF GOODS SOLD

**Inventory** is the name given to goods that are either manufactured or purchased for resale in the normal course of business. A car dealer s inventory is comprised of automobiles; a grocery store s inventory consists of vegetables, meats, dairy products, canned goods, and bakery items; SEARS inventory is composed of shirts, appliances, DieHard[fi] batteries, and more. Like other items of value, such as cash or equipment, inventory is classified as an asset and reported on the balance sheet. When products are sold, they are no longer assets. The costs to purchase or manufacture the products must be removed from the asset classification (inventory) on the balance sheet and reported on the income statement as an expense **cost of goods sold**.

The time line in Exhibit 7-3 illustrates the business issues involved with inventory.

exhibit 7-3 Time Line of Business Issues Involved with Inventory



The accounting questions associated with the items in the time line are as follows:

When is inventory considered to have been purchased when it is ordered, shipped, received, or paid for?
Similarly, when is the inventory considered to have been sold?
Which of the costs associated with the value added process are considered to be part of the cost of inventory, and which are simply business expenses for that period?
How should total inventory cost be divided between the inventory that was sold (cost of goods sold) and the inventory that remains (ending inventory)?

These questions are addressed in the following sections of the chapter.

## What Is Inventory?

In a merchandising firm, either wholesale or retail, inventory is composed of the items that have been purchased in order to be resold. In a supermarket, milk is inventory, a shopping cart is not. In a manufacturing company, there are three different types of inventory: raw materials, work in process, and finished goods.

**raw materials** Materials purchased for use in manufacturing products.

**RAW MATERIALS** **Raw materials** are goods acquired in a relatively undeveloped state that will eventually compose a major part of the finished product. If you are making bicycles, one of the raw materials is tubular steel. For a computer assembler, raw materials inventory is composed of plastic, wires, and **INTEL** Pentium[fi] chips.

**work in process** Partially completed units in production.

**WORK IN PROCESS** **Work in process** consists of partially finished products. When you take a tour of a manufacturing plant, you are seeing work-in-process inventory.

**finished goods** Manufactured products ready for sale.

**FINISHED GOODS** **Finished goods** are the completed products waiting for sale. A completed car rolling off the automobile assembly line is part of finished goods inventory.

## What Costs Are Included in Inventory Cost?

Inventory cost consists of all costs involved in buying the inventory and preparing it for sale. In the case of raw materials or goods acquired for resale by a merchandising firm, cost includes the purchase price, freight, and receiving and storage costs.

The cost of work-in-process inventory is the sum of the costs of the raw materials, the production labor, and some share of the manufacturing overhead required to keep the factory running. The cost of an item in finished goods inventory is the total of the materials, labor, and overhead costs used in the production process for that item. As you can imagine, accumulating these costs and calculating a cost per unit is quite a demanding task. The cost of a finished automobile includes the cost of the steel and rubber; the salaries and wages of assembly workers, inspectors, and testers; the factory insurance; the workers pension benefits; and much more. This costing process is a key part of management accounting and is covered in Chapter 2 in the management accounting part of the text.

The costs just described are all costs expended in order to get inventory produced and ready to sell. These costs are appropriately included in inventory costs. Those costs incurred in the sales effort itself are *not* inventory costs, but instead should be reported as operating expenses in the period in which they are incurred. For example, the costs of maintaining the finished goods warehouse or the retail showroom are period expenses. Salespersons salaries are period expenses, as is the cost of advertising (a more detailed discussion of advertising is included in Chapter 8). In addition, general nonfactory administrative costs are also period expenses. Examples are the costs of the corporate headquarters and the company president s salary.

## Who Owns the Inventory?

As a general rule, goods should be included in the inventory of the business holding legal title. So, a merchandising firm is considered to have purchased inventory once it has legal title to the inventory. Similarly, the inventory is considered to be sold when legal title passes to the cus-

tomer. In most cases, this legal title rule is easy to apply if you go into a business and look around, it is probably safe to assume that the inventory you see belongs to that business. In the case of goods in transit and goods on consignment, however, this legal title rule can be rather difficult to apply.

**GOODS IN TRANSIT** When goods are being shipped from the seller to the buyer, who owns the inventory that is on a truck or railroad car the seller or the buyer? If the seller pays for the shipping costs, the arrangement is known as **FOB (free-on-board) destination**, and the seller owns the merchandise from the time it is shipped until it is delivered to the buyer. If the buyer pays the shipping costs, the arrangement is known as **FOB (free-on-board) shipping point**, and the buyer owns the merchandise during transit. Thus, in determining which items should be counted and included in the inventory balance for a period, a company must note the amount of merchandise in transit and the terms under which it is being shipped. In all cases, merchandise should be included in the inventory of the party who owns it; for goods in transit, this is generally the party who is paying the shipping costs. The impact of shipping terms on the ownership of goods in transit is summarized in Exhibit 7-4.

**FOB (free-on-board) destination** A business term meaning that the seller of merchandise bears the shipping costs and maintains ownership until the merchandise is delivered to the buyer.

**FOB (free-on-board) shipping point** A business term meaning that the buyer of merchandise bears the shipping costs and acquires ownership at the point of shipment.

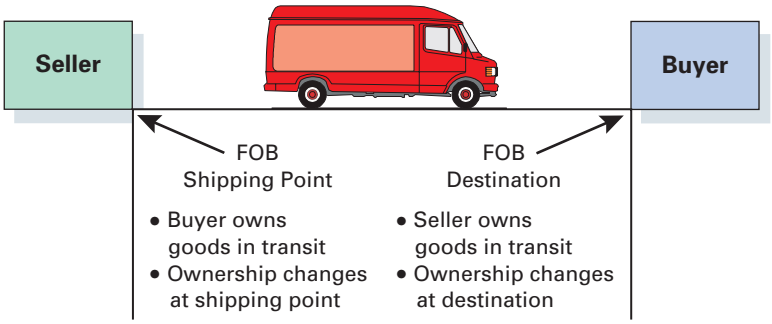
**consignment** An arrangement whereby merchandise owned by one party, the consignor, is sold by another party, the consignee, usually on a commission basis.

**GOODS ON CONSIGNMENT** Sometimes the inventory a firm stocks in its warehouse has not actually been purchased from suppliers. With a **consignment** arrangement, suppliers (the consignors) provide inventory for resale while retaining ownership of the inventory until it is sold. The firm selling the merchandise (the consignee) merely stocks and sells the merchandise for the supplier/owner and receives a commission on any sales as payment for services rendered. Through a consignment arrangement, the manufacturer enables dealers to acquire a broad sample of inventory without incurring the purchase and finance charges required to actually buy the inventory. It is extremely important that goods being held on consignment not be included in the inventory of the firm holding the goods for sale even though they are physically on that firm s premises. It is equally important that the supplier/owner properly include all such goods in its records even though the inventory is not on its premises.

Auditing goods in transit and consigned inventory presents the auditor with a special set of problems. Inventory that is on the premises may not belong to the company because the goods are held on consignment. On the other hand, goods that are in transit in trucks and boats scattered around the world may belong to the company and should be included in the inventory count.

An example of a company that successfully uses consignment sales as part of its business strategy is **INTERNATIONAL AIRLINE SUPPORT GROUP, INC.** This company is a leading distributor of aircraft spare parts for large jet airplanes. The company uses consignments because, as stated in its annual report, this arrangement allows it to obtain parts inventory on a favorable basis without committing its capital to purchasing inventory. In the fourth quarter of 1999, the company realized a 35% increase in earnings as a result of selling surplus **BOEING** 747 parts on behalf of **GATX CORPORATION**.

**exhibit 7-4** Ownership Transfer for Goods in Transit



## business environment essay

**Technology Is Changing the Way Companies View Inventory** In the good old days, a company would buy inventory, hold it for a while, and then sell it to a customer. Businesses now realize that inventory sitting on a shelf costs money money that is tied up in inventory cannot be used for other purposes. Technology now allows companies to shorten the time that money is tied up in inventory. An entire discipline, supply-chain management, has developed to determine the most cost-efficient method for procuring and moving raw materials, work in process, finished goods, and items that have been sold from the supplier to the producer to the eventual end user.

The relationship between **PROCTER & GAMBLE** (P&G) and **WAL-MART** provides an example of how technology is being used to manage inventory. In 1999, Wal-Mart was easily P&G s largest customer, accounting for 12% of its sales. Using electronic data interchange (EDI), P&G has access to certain portions of Wal-Mart s inventory data. When Wal-Mart s inventory reaches a certain level, P&G automatically processes and ships an order to the appropriate Wal-Mart warehouse to ensure that Wal-Mart never is out of stock of P&G products. Companies are able to establish such mutually beneficial relationships because technology now allows the sharing of information at a very low cost.

## Ending Inventory and Cost of Goods Sold

**cost of goods available for sale** The cost of all merchandise available for sale during the period; equal to the sum of beginning inventory and net purchases.

Inventory purchased or manufactured during the period is added to beginning inventory, and the total cost of this inventory is called the **cost of goods available for sale**. At the end of an accounting period, total cost of goods available for sale must be allocated between inventory still remaining (to be reported in the balance sheet as an asset) and inventory sold during the period (to be reported in the income statement as an expense, Cost of Goods Sold).

This cost allocation process is extremely important because the more cost that is said to remain in ending inventory, the less cost is reported as cost of goods sold in the income statement. This is why accurately determining who owns the inventory is such a big issue. Making a mistake with inventory ownership will result in misstating both the income statement and the balance sheet. For this reason, accountants must be careful of inventory errors because they directly affect reported net income. The impact of inventory errors is illustrated later in the chapter.

The cost allocation process also involves a significant amount of accounting judgment. Identical inventory items are usually purchased at varying prices throughout the year, so to calculate the amount of ending inventory and cost of goods sold, the accountant must determine which items (the low cost or high cost) remain and which were sold. Again, this decision can directly affect the amount of reported cost of goods sold and net income. The use of inventory cost flow assumptions is discussed later in the chapter.

## to summarize

Inventory is composed of goods held for sale in the normal course of business. Cost of goods sold is the cost of inventory sold during the period. For a manufacturing firm, the three types of inventory are raw materials, work in process, and finished goods. All costs incurred in producing and getting inventory ready to sell should be added to inventory cost. The costs associated with the selling effort itself are operating expenses of the period. Inventory should be recorded on the books of the company holding legal title.

At the end of an accounting period, the total cost of goods available for sale during the period must be allocated between ending inventory and cost of goods sold.

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## 2 ACCOUNTING FOR INVENTORY PURCHASES AND SALES

Account for inventory purchases and sales using both a perpetual and a periodic inventory system.

To begin a more detailed study of inventory accounting, we must first establish a solid understanding of the journal entries used to record inventory transactions. The accounting procedures for recording purchases and sales using both a periodic and a perpetual inventory system are detailed in this section.

### Overview of Perpetual and Periodic Systems

Some businesses track changes in inventory levels on a continuous basis, recording each individual purchase and sale to maintain a running total of the inventory balance. This is called a perpetual inventory system. Other businesses rely on quarterly or yearly inventory counts to reveal which inventory items have been sold. This is called a periodic inventory system.

**PERPETUAL** You own a discount appliance superstore. Your biggest-selling items are washers, dryers, refrigerators, microwaves, and dishwashers. You advertise your weekly sale items on local TV stations, and your sales volume is quite heavy. You have 50 salespeople who work independently of one another. You have found that customers get very upset if they come to buy an advertised item and you have run out. In this business environment, would it make sense to keep a running total of the quantity remaining of each inventory item and update it each time a sale is made? Yes, the benefit of having current information on each inventory item would make it worthwhile to spend a little extra time to update the inventory records when a sale is made.

**perpetual inventory system**
A system of accounting for inventory in which detailed records of the number of units and the cost of each purchase and sales transaction are prepared throughout the accounting period.

This appliance store would probably use a **perpetual inventory system**. With a perpetual system, inventory records are updated whenever a purchase or a sale is made. In this way, the inventory records at any given time reflect how many of each inventory item should be in the warehouse or out on the store shelves. A perpetual system is most often used when each individual inventory item has a relatively high value or when there are large costs to running out of or overstocking specific items.

**PERIODIC** You operate a newsstand in a busy metropolitan subway station. Almost all of your sales occur during the morning and the evening rush hours. You sell a diverse array of items newspapers, magazines, pens, snacks, and other odds and ends. During rush hour, your business is a fast-paced pressure cooker; the longer you take with one customer, the more chance that the busy commuters waiting in line for service will tire of waiting and you will lose sales. In this business environment, would it make sense to make each customer wait while you meticulously check off on an inventory sheet exactly which items were sold? No, the delay caused by this detailed bookkeeping would cause you to lose customers. It makes more sense to wait until the end of the day, count up what inventory you still have left, compare that to what you started with, and use those numbers to deduce how many of each inventory item you sold during the day.

**periodic inventory system**
A system of accounting for inventory in which cost of goods sold is determined and inventory is adjusted at the end of the accounting period, not when merchandise is purchased or sold.

This subway newsstand scenario is an example of a situation where a **periodic inventory system** is appropriate. With a periodic system, inventory records are not updated when a sale is made; only the dollar amount of the sale is recorded. Periodic systems are most often used when inventory is composed of a large number of diverse items, each with a relatively low value.

**IMPACT OF INFORMATION TECHNOLOGY** Over the past 25 years, advances in information technology have lowered the cost of maintaining a perpetual inventory system. As a result, more businesses have adopted perpetual systems so that they can more closely track inven-

A newsstand will wait until the end of the day to count inventory by comparing what items it started with to what is left. This is an example of a periodic inventory system.

tory levels. The most visible manifestation of this trend is in supermarkets. Twenty years ago, the checkout clerk rang up the price of each item on a cash register. After the customers walked out of the store with their groceries, the store knew the total amount of the purchase but did not know which individual items had been sold. This was a periodic inventory system. Now, with laser scanning equipment tied into the supermarket s computer system, most supermarkets operate under a perpetual system. The store manager knows exactly what you bought and exactly how many of each item should still be left on the store shelves.

STOP & THINK If you buy your groceries with a credit card or a bank debit card, what kind of information can the supermarket accumulate about you?

## Perpetual and Periodic Journal Entries

The following transactions for Grantsville Clothing Store will be used to illustrate the differences in bookkeeping procedures between a business using a perpetual inventory system and one using a periodic inventory system:

a. Purchased on account: 1,000 shirts at a cost of $10 each for a total of $10,000.
b. Purchased on account: 300 pairs of pants at a cost of $18 each for a total of $5,400.
c. Paid cash for separate shipping costs on the shirts purchased in (a), $970. The supplier of the pants purchased in (b) included the shipping costs in the $18 purchase price.
d. Returned 30 of the shirts (costing $300) to the supplier because they were stained.
e. Paid for the shirt purchase. A 2% discount was given on the $9,700 bill [(1,000 purchased − 30 returned) × $10] because of payment within the ten-day discount period (payment terms were 2/10, n/30).
f. Paid $5,400 for the pants purchase. No discount was allowed because payment was made after the discount period.
g. Sold on account: 600 shirts at a price of $25 each for a total of $15,000.
h. Sold on account: 200 pairs of pants at a price of $40 each for a total of $8,000.
i. Accepted return of 50 shirts by dissatisfied customers.

The journal entries for the perpetual inventory system should seem familiar to you a perpetual system has been assumed in all earlier chapters of the text. A perpetual system was assumed because it is logical and is the system all companies would choose if there were no cost to updating the inventory records each time a sale or purchase is made. As mentioned, a periodic inventory system is sometimes a practical necessity.

**PURCHASES** With a perpetual system, all purchases are added (debited) directly to Inventory. With a periodic system, the inventory balance is only updated using an inventory count at the end of the period; inventory purchases during the period are recorded in a temporary holding account called Purchases. As will be illustrated later, at the end of the period, the balance in Purchases is closed to Inventory in connection with the computation of cost of goods sold.

Entries (a) and (b) to record the shirt and pants purchases are given below:

| | Perpetual | | | Periodic | | |
|---|---|---|---|---|---|---|
| a. | Inventory | 10,000 | | Purchases | 10,000 | |
| | Accounts Payable | | 10,000 | Accounts Payable | | 10,000 |
| b. | Inventory | 5,400 | | Purchases | 5,400 | |
| | Accounts Payable | | 5,400 | Accounts Payable | | 5,400 |

**TRANSPORTATION COSTS** The cost of transporting the inventory is an additional inventory cost. Sometimes, as with the pants in the Grantsville Clothing example, the shipping cost is already included in the purchase price, so a separate entry to record the transportation costs is not needed. When a separate payment is made for transportation costs, it is recorded as follows:

| | Perpetual | | | Periodic | | |
|---|---|---|---|---|---|---|
| c. | Inventory | 970 | | Freight In | 970 | |
| | Cash | | 970 | Cash | | 970 |

With a perpetual inventory system, transportation costs are added directly to the inventory balance. With a periodic inventory system, another temporary holding account, Freight In, is created, and transportation costs are accumulated in this account during the period. Like the purchases account, Freight In is closed to Inventory at the end of the period in connection with the computation of cost of goods sold.

**PURCHASE RETURNS** With a perpetual system, the return of unsatisfactory merchandise to the supplier results in a decrease in Inventory. In addition, since no payment will have to be made for the returned merchandise, Accounts Payable is reduced by the same amount. With a periodic system, the amount of the returned merchandise is recorded in yet another temporary holding account called Purchase Returns. Purchase Returns is a contra account to Purchases and is also closed to Inventory as part of the computation of cost of goods sold.

| | Perpetual | | | Periodic | | |
|---|---|---|---|---|---|---|
| d. | Accounts Payable | 300 | | Accounts Payable | 300 | |
| | Inventory | | 300 | Purchase Returns | | 300 |

If the returned merchandise had already been paid for, the supplier would most likely return the purchase price. In this case, the debit would be to Cash instead of to Accounts Payable.

**PURCHASE DISCOUNTS** As discussed in Chapter 6, sellers sometimes offer inducements for credit customers to pay quickly. In this example, Grantsville Clothing takes advantage of purchase discounts to save money on the payment for the shirts. The amount of the purchase discount is $194 ($9,700 × 0.02), so the total payment for the shirts is $9,506 ($9,700 − $194). The amount recorded for inventory should reflect the actual amount paid to purchase the inventory. With a perpetual inventory system, this is shown by subtracting the purchase discount amount from the inventory account. With a periodic inventory system, another holding account is created to accumulate purchase discounts taken during the period.

| | Perpetual | | | Periodic | | |
|---|---|---|---|---|---|---|
| e. | Accounts Payable | 9,700 | | Accounts Payable | 9,700 | |
| | Inventory | | 194 | Purchase Discounts | | 194 |
| | Cash | | 9,506 | Cash | | 9,506 |
| f. | Accounts Payable | 5,400 | | Accounts Payable | 5,400 | |
| | Cash | | 5,400 | Cash | | 5,400 |

**fyi**

In practice, this same inventory adjustment information (e.g., Freight In, Purchase Returns, etc.) would be maintained in supplemental records under a perpetual inventory system. Such information is useful to management in evaluating company purchasing practices.

Note that the payment for the pants is made after the discount period, so the full amount must be paid. Since this transaction had no impact on Inventory, the entry is the same for both the perpetual and the periodic system.

In terms of journal entries, you should recognize that the difference between a perpetual and a periodic inventory system is that all adjustments to inventory under a perpetual system are entered directly in the inventory account; with a periodic system, all inventory adjustments are accumulated in an array of temporary holding accounts: Purchases, Freight In, Purchase Returns, and Purchase Discounts.

**SALES** The sales of shirts and pants would be recorded as follows:

| | Perpetual | | | Periodic | | |
|---|---|---|---|---|---|---|
| g. | Accounts Receivable | 15,000 | | Accounts Receivable | 15,000 | |
| | Sales (600 × $25) | | 15,000 | Sales | | 15,000 |
| | Cost of Goods Sold | 6,000 | | | | |
| | Inventory (600 × $10) | | 6,000 | | | |
| h. | Accounts Receivable | 8,000 | | Accounts Receivable | 8,000 | |
| | Sales (200 × $40) | | 8,000 | Sales | | 8,000 |
| | Cost of Goods Sold | 3,600 | | | | |
| | Inventory (200 × $18) | | 3,600 | | | |

These entries reflect the primary difference between a perpetual and a periodic inventory system with a periodic system, no attempt is made to recognize cost of goods sold on a transaction-by-transaction basis. In fact, with a periodic system, Grantsville Clothing would not even know how many shirts and how many pairs of pants had been sold. Instead, only total sales of $23,000 ($15,000 + $8,000) would be known.

For simplicity, we have recorded the cost of goods sold for the shirts as $10 each. The actual cost per shirt, after adjusting for freight in and purchase discounts, is $10.80, computed as follows:

| | |
|---|---|
| Total purchase price (1,000 shirts) | $10,000 |
| Plus: Freight in | 970 |
| Less: Purchase returns (30 shirts) | (300) |
| Less: Purchase discounts | (194) |
| Total cost of shirts (970 shirts) | $10,476 |

Total cost $10,476 ÷ 970 shirts = $10.80 per shirt

In practice, it is unlikely that a firm using a perpetual inventory system would bother to adjust unit costs for the effects of freight cost and purchase discounts on an ongoing basis. The

cost of doing these calculations could easily outweigh any resulting improvement in the quality of cost information.

**SALES RETURNS** As discussed in Chapter 6, dissatisfied customers sometimes return their purchases. The journal entries to record the return of 50 shirts are as follows:

| | Perpetual | | | Periodic | | |
|---|---|---|---|---|---|---|
| i. | Sales Returns (50 × $25) | 1,250 | | Sales Returns | 1,250 | |
| | Accounts Receivable | | 1,250 | Accounts Receivable | | 1,250 |
| | Inventory (50 × $10) | 500 | | | | |
| | Cost of Goods Sold | | 500 | | | |

Should the returned inventory be recorded at its original cost of $10 per shirt?

Under the perpetual system, not only are the sales for the returned items canceled, but the cost of the returned inventory is also removed from Cost of Goods Sold and restored to the inventory account.

**CLOSING ENTRIES** After all of the journal entries are posted to the ledger, the T-accounts for Inventory and Cost of Goods Sold, under a perpetual system, would appear as follows:

| Inventory | | | | Cost of Goods Sold | | | |
|---|---|---|---|---|---|---|---|
| (a) | 10,000 | (d) | 300 | (g) | 6,000 | (i) | 500 |
| (b) | 5,400 | (e) | 194 | (h) | 3,600 | | |
| (c) | 970 | (g) | 6,000 | | | | |
| (i) | 500 | (h) | 3,600 | | | | |
| Bal. | 6,776 | | | Bal. | 9,100 | | |

These numbers, after being verified by a physical count of the inventory (as described in the next section), would be reported in the financial statements the $6,776 of Inventory in the balance sheet and the $9,100 of Cost of Goods Sold in the income statement.

Review the journal entries (a) through (i) under the periodic inventory system and notice that none of the amounts have been entered in either Inventory or Cost of Goods Sold. As a result, both of these accounts will have zero balances at year-end. Actually, the inventory account would have the same balance it had at the beginning of the period, which, in this example, we will assume to be zero.

With a periodic inventory system, the correct balances are recorded in Inventory and Cost of Goods Sold through a series of closing entries. Two entries are made:

1. Transfer all the temporary holding accounts to the inventory account balance. At this point, the inventory account balance is equal to the cost of goods available for sale (beginning inventory plus the net cost of purchases for the period).
2. Reduce Inventory by the amount of Cost of Goods Sold. At this point, the inventory account balance is equal to the ending inventory amount, and the appropriate cost of goods sold amount is also recognized.

To illustrate, the information for Grantsville Clothing will be used. The entry to transfer all the temporary holding accounts to the inventory account is as follows:

| | | |
|---|---|---|
| Inventory | 15,876 | |
| Purchase Returns | 300 | |
| Purchase Discounts | 194 | |
| Freight In | | 970 |
| Purchases | | 15,400 |

*Closing of temporary inventory accounts for periodic system.*

**net purchases** The net cost of inventory purchased during a period, after adding the cost of freight in and subtracting returns and discounts.

The inventory debit of $15,876 is the amount of **net purchases** for the period. Notice that, after this entry has been posted, the balances in all the temporary holding accounts will have been reduced to zero. As mentioned, after the addition of net purchases, the inventory account balance represents cost of goods available for sale (the sum of beginning inventory and net purchases). Remember that, in this example, beginning inventory is assumed to be zero.

The second closing entry involves the adjustment of Inventory to its appropriate ending balance and the creation of the cost of goods sold account. This cost of goods sold account would be closed when other nominal accounts (e.g., Sales Salaries, Interest Expense, etc.) are closed. If the year-end physical count indicates that the ending inventory balance should be $6,776, the appropriate entry is as follows:

| | | |
|---|---|---|
| Cost of Goods Sold | 9,100 | |
| Inventory ($15,876 − $6,776) | | 9,100 |
| *Adjustment of inventory account to appropriate ending balance.* | | |

In this example, the values for both ending inventory ($6,776) and cost of goods sold ($9,100) are the same with either a perpetual or a periodic inventory system. So, what is the practical difference between the two systems? One difference is that a perpetual system can tell you the inventory balance and the cumulative cost of goods sold at any time during the period. With a periodic system, on the other hand, you must wait until the inventory is counted at the end of the period to compute the amount of inventory or cost of goods sold. Another difference is that, with a perpetual system, you can compare the inventory records to the amount of inventory actually on hand and thus determine whether any inventory has been lost or stolen. As described in the next section, this comparison is not possible with a periodic system.

## to summarize

With a perpetual inventory system, the amount of inventory and cost of goods sold for the period are tracked on an ongoing basis. With a periodic inventory system, inventory and cost of goods sold are computed using an end-of-period inventory count. With a periodic system, inventory-related items are recorded in temporary holding accounts that are transferred to the inventory account at the end of the period.

**3** Calculate cost of goods sold using the results of an inventory count and understand the impact of errors in ending inventory on reported cost of goods sold.

# COUNTING INVENTORY AND CALCULATING COST OF GOODS SOLD

Regular physical counts of the existing inventory are essential to maintaining reliable inventory accounting records. With a perpetual system, the physical count can be compared to the recorded inventory balance to see whether any inventory has been lost or stolen. With a periodic system, a physical count is the only way to get the information necessary to compute cost of goods sold.

## Taking a Physical Count of Inventory

No matter which inventory system a company is using, periodic physical counts are a necessary and important part of accounting for inventory. With a perpetual inventory system, the physical count either confirms that the amount entered in the accounting records is accurate or highlights shortages and clerical errors. If, for example, employees have been stealing inventory, the theft will show up as a difference between the balance in the inventory account and the amount physically counted.

A physical count of inventory involves two steps:

1. *Quantity count.* In most companies, physically counting all inventory is a time-consuming activity. Because sales transactions and merchandise deliveries can complicate matters, in-

ventory is usually counted on holidays or after the close of business on the inventory day. Special care must be taken to ensure that all inventory owned, wherever its location, is counted and that inventory on hand but not owned (consignment inventory) is not counted.

2. *Inventory costing.* When the physical count has been completed, each type of merchandise is assigned a unit cost. The quantity of each type of merchandise is multiplied by its unit cost to determine the dollar value of the inventory. These amounts are then added to obtain the total ending inventory for the business. This is the amount reported as Inventory on the balance sheet. The ending balance in the inventory account may have to be adjusted for any shortages discovered.

To illustrate the impact of a physical inventory count on the accounting records for both a periodic and a perpetual system, we will refer back to the Grantsville Clothing Store example used earlier. Assume that a physical count, combined with inventory costing analysis, suggests that the correct amount for ending inventory is $5,950. This information can be combined with previous information from the accounting system as follows:

| | Periodic System | Perpetual System | |
|---|---|---|---|
| Beginning inventory | $ 0 | $ 0 | |
| Plus: Net purchases | 15,876 | 15,876 | |
| Cost of goods available for sale | $15,876 | $15,876 | |
| Less: Ending inventory | 5,950 | 6,776 | (from inventory system) |
| Cost of goods sold | $ 9,926 | $ 9,100 | (from inventory system) |
| Goods lost or stolen | unknown | 826 | ($6,776 − $5,950) |
| Total cost of goods sold, lost, or stolen | $ 9,926 | $ 9,926 | |

Recall that, in this example, the beginning inventory is assumed to be zero. The amount of net purchases is a combination of the items affecting the amount paid for inventory purchases during the period: purchase price, freight in, purchase returns, and purchase discounts. The $15,876 amount for net purchases was computed earlier in connection with the closing entry for the periodic system.

This cost of goods sold computation highlights the key difference between a periodic and a perpetual inventory system. With a periodic system, the company does not know what ending inventory *should be* when the inventory count is performed. The best the company can do is count the inventory and assume that the difference between the cost of goods available for sale and the cost of goods still remaining (ending inventory) must represent the cost of goods that were sold. Actually, a business using a periodic system has no way of knowing whether these goods were sold, lost, stolen, or spoiled all it knows for sure is that the goods are gone.

With a perpetual system, the accounting records themselves yield the cost of goods sold during the period, as well as the amount of inventory that should be found when the physical count is made. In the Grantsville Clothing example, the predicted ending inventory is $6,776 (from the T-account shown earlier); the actual ending inventory, according to the physical count, is only $5,950. The difference of $826 ($6,776 − $5,950) represents inventory lost, stolen, or spoiled during the period. This amount is called **inventory shrinkage**. The adjusting entry needed to record this inventory shrinkage is as follows:

**inventory shrinkage** The amount of inventory that is lost, stolen, or spoiled during a period; determined by comparing perpetual inventory records to the physical count of inventory.

| | | |
|---|---|---|
| Inventory Shrinkage | 826 | |
| Inventory ($6,776 − $5,950) | | 826 |
| *Adjustment of perpetual inventory balance to reflect inventory shrinkage.* | | |

For internal management purposes, the amount of inventory shrinkage would be tracked from one period to the next to detect whether the amount of shrinkage for any given period is un-

## business environment essay

**Inventory Fraud: The Great Salad Oil Case** One of the most common ways of committing major financial statement fraud and reporting income that is higher than it should be is to overstate a company s inventory. If ending inventory is overstated, cost of goods sold is understated and net income is overstated. The overstatement of inventory and income can attract investors and boost the stock price. In addition, since inventory can often be pledged as collateral to borrow money from banks, its overstatement increases a company s borrowing power. Consider the famous case of **ALLIED CRUDE VEGETABLE OIL**, one of the best-known inventory frauds of all time.

Founded in 1957 by Tino De Angelis, Allied Crude Vegetable Oil was set up on an old petroleum tank farm in Bayonne, New Jersey. De Angelis used the soybean oil that was supposedly in the tanks as collateral to borrow money from financial institutions. He then hired **AMERICAN EXPRESS WAREHOUSING, LTD.** (a subsidiary of **AMERICAN EXPRESS**) to take charge of storing, inspecting, and documenting the oil. The warehousing receipts issued by the warehouse workers were used as evidence of the oil.

De Angelis handpicked 22 men to work at the tank farm, and they fooled the American Express inspectors with considerable ease. For example, one of them would climb to the top of a tank, drop in a weighted tape measure, and then shout down to the inspector that the tank was full. In most cases the tanks were

**fyi**

**CVS** is a leader in the retail drugstore industry in the United States with net sales of $18.1 billion in fiscal 1999. Inventory shrinkage for CVS for 1999 was $163 million, or almost 1% of sales.

usually high. For external reporting purposes, the shrinkage amount would probably be combined with normal cost of goods sold, and the title Cost of Goods Sold would be given to the total. Notice that if this practice is followed, reported cost of goods sold would be the same under both a perpetual and a periodic inventory system. The difference is that, with a perpetual system, company management knows how much of the goods was actually sold and how much represents inventory shrinkage.

With a periodic inventory system, no journal entry for inventory shrinkage is made because the amount of shrinkage is unknown. Instead, the ending inventory amount derived from the physical count is used to make the second periodic inventory closing entry (refer back to the previous section). Using the $5,950 ending inventory amount, the appropriate periodic inventory closing entry is:

| | | |
|---|---|---|
| Cost of Goods Sold | 9,926 | |
| Inventory ($15,876 − $5,950) | | 9,926 |
| *Adjustment of inventory account to appropriate ending balance.* | | |

## The Income Effect of an Error in Ending Inventory

As shown in the previous section, the results of the physical inventory count directly affect the computation of cost of goods sold with a periodic system and inventory shrinkage with a perpetual system. Errors in the inventory count will cause the amount of cost of goods sold or inventory shrinkage to be misstated. To illustrate, assume that the correct inventory count for Grantsville Clothing is $5,950 but that the ending inventory value is mistakenly computed to be $6,450. The impact of this $500 ($6,450 − $5,950) inventory overstatement is as follows:

empty, although some were filled with seawater and topped with a thin slick of oil. Moreover, the tanks were connected by a jungle of pipes that allowed the workers to pump whatever oil there was from one tank to another.

The maneuvers gave De Angelis an endless supply of oil and borrowing power. If anyone had checked a statistical report issued by the U.S. Census Bureau, he or she would have found that the oil supposedly stored at the tank farm totaled twice as much as all the oil in the country. By the close of 1963, the warehouse receipts represented 937 million pounds of oil when actually only 100 million pounds existed.

The salad oil scandal was revealed when De Angelis was unable to make payments on an investment. The ensuing investigation revealed a fraud that was conservatively estimated at $200 million. Most of the losses were borne by 51 major banking and brokerage houses in the United States and Europe, 20 of which collapsed.

De Angelis pleaded guilty to four federal counts of fraud and conspiracy and was given a 20-year sentence. The millions of dollars loaned to De Angelis were never found, and it is generally believed that the missing oil never existed. In fact, when one oil tank that supposedly contained $3,575,000 worth of oil was opened, seawater ran out for 12 consecutive days.

**Source:** Marshall B. Romney and W. Steve Albrecht, The Use of Investigative Agencies by Auditors, *The Journal of Accountancy*, October 1979, p. 61.

| | Periodic System | Perpetual System | |
|---|---|---|---|
| Beginning inventory | $ 0 | $ 0 | |
| Plus: Net purchases | 15,876 | 15,876 | |
| Cost of goods available for sale | $15,876 | $15,876 | |
| Less: Ending inventory | 6,450 | 6,776 | (from inventory system) |
| Cost of goods sold | $ 9,426 | $ 9,100 | (from inventory system) |
| Goods lost or stolen | unknown | 326 | ($6,776 − $6,450) |
| Total cost of goods sold, lost, or stolen | $ 9,426 | $ 9,426 | |

The $500 inventory overstatement reduces the reported cost of goods sold, lost, or stolen by $500, from $9,926 (computed earlier) to $9,426. This is because if we mistakenly think that we have more inventory remaining, then we will also mistakenly think that we must have sold less. Conversely, if the physical count understates ending inventory, total cost of goods sold will be overstated.

Since an inventory overstatement decreases reported cost of goods sold, it will also increase reported gross margin and net income. For this reason, the managers of a firm that is having difficulty meeting profit targets are sometimes tempted to mistakenly overstate ending inventory. Because of this temptation, auditors must take care to review a company s inventory counting process and also to physically observe a sample of the actual inventory. Many new accounting graduates who are hired by public accounting firms spend a portion of their first year on the job checking the inventory counts done by clients. The benefits of this exposure are twofold: (1) these new auditors get an opportunity to see what a business actually does, and (2) the inventory count provides assurance that the inventory amount stated on the financial statements is accurate.

## to summarize

A physical inventory count is necessary to ensure that inventory records match the actual existing inventory. If a perpetual system is used, an inventory count can be used to compute the amount of inventory shrinkage during the period. An error in the reported ending inventory amount can have a significant effect on reported cost of goods sold, gross margin, and net income. For example, overstatement of ending inventory results in understatement of cost of goods sold and overstatement of net income.

## 4

Apply the four inventory cost flow alternatives: specific identification, FIFO, LIFO, and average cost.

## INVENTORY COST FLOW ASSUMPTIONS

Consider the following transactions for the Ramona Rice Company for the year 2003.

Mar. 23 Purchased 10 kilos of rice, $4 per kilo.
Nov. 17 Purchased 10 kilos of rice, $9 per kilo.
Dec. 31 Sold 10 kilos of rice, $10 per kilo.

The surprisingly difficult question to answer with this simple example is How much money did Ramona make in 2003? As you can see, it depends on which rice was sold on December 31. There are three possibilities:

| | Case #1 Sold Old Rice | Case #2 Sold New Rice | Case #3 Sold Mixed Rice |
|---|---|---|---|
| Sales ($10 × 10 kilos) | $100 | $100 | $100 |
| Cost of goods sold (10 kilos) | 40 | 90 | 65 |
| Gross margin | $ 60 | $ 10 | $ 35 |

**FIFO (first in, first out)** An inventory cost flow assumption whereby the first goods purchased are assumed to be the first goods sold so that the ending inventory consists of the most recently purchased goods.

**LIFO (last in, first out)** An inventory cost flow assumption whereby the last goods purchased are assumed to be the first goods sold so that the ending inventory consists of the first goods purchased.

**average cost** An inventory cost flow assumption whereby cost of goods sold and the cost of ending inventory are determined by using an average cost of all merchandise available for sale during the period.

In Case #1, it is assumed that the 10 kilos of rice sold on December 31 were the old ones, purchased on March 23 for $4 per kilo. Accountants call this a **FIFO (first in, first out)** assumption. In Case #2, it is assumed that the company sold the new rice, purchased on November 17 for $9 per kilo. Accountants call this a **LIFO (last in, first out)** assumption. In Case #3, it is assumed that all the rice is mixed together, so the cost per kilo is the average cost of all the rice available for sale, or $6.50 per kilo [($40 + $90) ÷ 20 kilos]. Accountants call this an **average cost** assumption.

The point of the Ramona Rice example is this: in most cases, there is no feasible way to track exactly which units were sold. Accordingly, in order to compute cost of goods sold, the accountant must make an assumption. Note that this is not a case of tricky accountants trying to manipulate the reported numbers; instead, this is a case in which income simply cannot be computed unless the accountant uses his or her judgment and makes an assumption.

All three of the assumptions described in the example FIFO, LIFO, and average cost are acceptable under U.S. accounting rules. An interesting question is whether a company would randomly choose one of the three acceptable methods, or whether the choice would be made more strategically. For example, if Ramona Rice were preparing financial statements to be used to support a bank loan application, which assumption would you suggest that the company make? On the other hand, if Ramona were completing its income tax return, which assumption would be the best? This topic of strategic accounting choice will be discussed later in this chapter.

In the following sections, we will examine in more detail the different cost flow assumptions used by companies to determine inventories and cost of goods sold.

## Specific Identification Inventory Cost Flow

**specific identification** A method of valuing inventory and determining cost of goods sold whereby the actual costs of specific inventory items are assigned to them.

An alternative to the assumptions just described is to specifically identify the cost of each particular unit that is sold. This approach, called **specific identification**, is often used by automobile dealers and other businesses that sell a limited number of units at a high price. To illustrate the specific identification inventory costing method, we will consider the September 2003 records of Nephi Company, which sells one type of bicycle.

Sept. 1 Beginning inventory consisted of 10 bicycles costing $200 each.
3 Purchased 8 bicycles costing $250 each.
18 Purchased 16 bicycles costing $300 each.
20 Purchased 10 bicycles costing $320 each.
25 Sold 28 bicycles, $400 each.

These inventory records show that during September the company had 44 bicycles (10 from beginning inventory and 34 that were purchased during the month) that it could have sold. However, only 28 bicycles were sold, leaving 16 on hand at the end of September. Using the specific identification method of inventory costing requires that the individual costs of the actual units sold be charged against revenue as cost of goods sold. To compute cost of goods sold and ending inventory amounts with this alternative, a company must know which units were actually sold and what the unit cost of each was.

Suppose that of the 28 bicycles sold by Nephi on September 25, 8 came from the beginning inventory, 4 came from the September 3 purchase, and 16 came from the September 18 purchase. With this information, cost of goods sold and ending inventory are computed as follows:

| | Bicycles | Costs |
|---|---|---|
| Beginning inventory | 10 | $ 2,000 |
| Net purchases | 34 | 10,000 |
| Goods available for sale | 44 | $12,000 |
| Ending inventory | 16 | 4,600 |
| Cost of goods sold | 28 | $ 7,400 |

The cost of ending inventory is the total of the individual costs of the bicycles still on hand at the end of the month, or:

| | |
|---|---|
| 2 bicycles from beginning inventory, $200 each | $ 400 |
| 4 bicycles purchased on September 3, $250 each | 1,000 |
| 0 bicycles purchased on September 18, $300 each | 0 |
| 10 bicycles purchased on September 20, $320 each | 3,200 |
| Total ending inventory (16 units) | $4,600 |

Similarly, the cost of goods sold is the total of the costs of the specific bicycles sold, or:

| | |
|---|---|
| 8 bicycles from beginning inventory, $200 each | $1,600 |
| 4 bicycles purchased on September 3, $250 each | 1,000 |
| 16 bicycles purchased on September 18, $300 each | 4,800 |
| 0 bicycles purchased on September 20, $320 each | 0 |
| Total cost of goods sold (28 units) | $7,400 |

For many companies, it is impractical, if not impossible, to keep track of specific units. In that case, an assumption must be made as to which units were sold during the period and which are still in inventory, as illustrated earlier in the Ramona Rice example.

It is very important to remember that the accounting rules do not require that the assumed flow of goods for costing purposes match the actual physical movement of goods purchased and

sold. In some cases, the assumed cost flow may be similar to the physical flow, but firms are not required to match the assumed accounting cost flow to the physical flow. A grocery store, for example, usually tries to sell the oldest units first to minimize spoilage. Thus, the physical flow of goods would reflect a FIFO pattern, but the grocery store could use a FIFO, LIFO, or average cost assumption in determining the ending inventory and cost of goods sold numbers to be reported in the financial statements. On the other hand, a company that stockpiles coal must first sell the coal purchased last since it is on top of the pile. That company might use the LIFO cost assumption, which reflects physical flow, or it might use one of the other alternatives.

In the next few sections, we will illustrate the FIFO, LIFO, and average inventory costing methods. The bicycle inventory data for Nephi Company will again be used in illustrating the different inventory cost flows.

## FIFO Cost Flow Assumption

With FIFO, it is assumed that the oldest units are sold and the newest units remain in inventory. Using the FIFO inventory cost flow assumption, the ending inventory and cost of goods sold for Nephi Company are:

| | Bicycles | Costs |
|---|---|---|
| Beginning inventory | 10 | $ 2,000 |
| Net purchases | 34 | 10,000 |
| Goods available for sale | 44 | $12,000 |
| Ending inventory | 16 | 5,000 |
| Cost of goods sold | 28 | $ 7,000 |

The $7,000 cost of goods sold and $5,000 cost of ending inventory are determined as follows:

| | |
|---|---|
| FIFO cost of goods sold (oldest 28 units): | |
| 10 bicycles from beginning inventory, $200 each | $2,000 |
| 8 bicycles purchased on September 3, $250 each | 2,000 |
| 10 bicycles purchased on September 18, $300 each | 3,000 |
| Total FIFO cost of goods sold | $7,000 |
| | |
| FIFO ending inventory (newest 16 units): | |
| 6 bicycles purchased on September 18, $300 each | $1,800 |
| 10 bicycles purchased on September 20, $320 each | 3,200 |
| Total FIFO ending inventory | $5,000 |

## LIFO Cost Flow Assumption

LIFO is the opposite of FIFO. With LIFO, the cost of the most recent units purchased is transferred to cost of goods sold. When prices are rising, as they are in the Nephi Company example, LIFO provides higher cost of goods sold, and hence lower net income, than FIFO. This is because the newest (high-priced) goods are assumed to have been sold. Using the LIFO inventory cost flow assumption, the ending inventory and cost of goods sold for Nephi Company are:

| | Bicycles | Costs |
|---|---|---|
| Beginning inventory | 10 | $ 2,000 |
| Net purchases | 34 | 10,000 |
| Goods available for sale | 44 | $12,000 |
| Ending inventory | 16 | 3,500 |
| Cost of goods sold | 28 | $ 8,500 |

The $8,500 cost of goods sold and $3,500 cost of ending inventory are determined as follows:

| | |
|---|---|
| LIFO cost of goods sold (newest 28 units): | |
| 10 bicycles purchased on September 20, $320 each | $3,200 |
| 16 bicycles purchased on September 18, $300 each | 4,800 |
| 2 bicycles purchased on September 3, $250 each | 500 |
| Total LIFO cost of goods sold | $8,500 |
| LIFO ending inventory (oldest 16 units): | |
| 10 bicycles from beginning inventory, $200 each | $2,000 |
| 6 bicycles purchased on September 3, $250 each | 1,500 |
| Total LIFO ending inventory | $3,500 |

## Average Cost Flow Assumption

With average costing, an average cost must be computed for all the inventory available for sale during the period. The average unit cost for Nephi Company during September is computed as follows:

| | Bicycles | Costs |
|---|---|---|
| Beginning inventory | 10 | $ 2,000 |
| Net purchases | 34 | 10,000 |
| Goods available for sale | 44 | $12,000 |
| $12,000 ÷ 44 units = $272.73 per unit | | |

With the average cost assumption, cost of goods sold is computed by multiplying the number of units sold by the average cost per unit. Similarly, the cost of ending inventory is computed by multiplying the number of units in ending inventory by the average cost per unit. These calculations are as follows:

Average Cost of Goods Sold: 28 Units × $272.73 per Unit = $7,636 (rounded)

Average Ending Inventory: 16 Units × $272.73 per Unit = $4,364 (rounded)

This information can be shown as follows:

| | Bicycles | Costs |
|---|---|---|
| Beginning inventory | 10 | $ 2,000 |
| Net purchases | 34 | 10,000 |
| Goods available for sale | 44 | $12,000 |
| Ending inventory | 16 | 4,364 |
| Cost of goods sold | 28 | $ 7,636 |

## A Comparison of All Inventory Costing Methods

The cost of goods sold and ending inventory amounts we have calculated using the three cost flow assumptions are summarized along with the resultant gross margins as follows:

| | FIFO | LIFO | Average |
|---|---|---|---|
| Sales revenue (28 × $400) | $11,200 | $11,200 | $11,200 |
| Cost of goods sold | 7,000 | 8,500 | 7,636 |
| Gross margin | $ 4,200 | $ 2,700 | $ 3,564 |
| Ending inventory | $ 5,000 | $ 3,500 | $ 4,364 |

Note that the net result of each of the inventory cost flow assumptions is to allocate the total cost of goods available for sale of $12,000 between cost of goods sold and ending inventory.

**CONCEPTUAL COMPARISON** From a conceptual standpoint, LIFO gives a better reflection of cost of goods sold in the income statement than does FIFO because the most recent goods ( last in ), with the most recent costs, are assumed to have been sold. Thus, LIFO cost of goods sold matches current revenues with current costs. Average cost is somewhere between LIFO and FIFO. On the balance sheet, however, FIFO gives a better measure of inventory value because, with the FIFO assumption, the first in units are sold and the remaining units are the newest ones with the most recent costs. In summary, LIFO gives a conceptually better measure of income, but FIFO gives a conceptually better measure of inventory value on the balance sheet.

**FINANCIAL STATEMENT IMPACT COMPARISON** As illustrated in the Nephi Company example, in times of rising inventory prices (the most common situation in the majority of industries today), cost of goods sold is highest with LIFO and lowest with FIFO. As a result, gross margin, net income, and ending inventory are lowest with LIFO and highest with FIFO. With the impact on the reported financial statement numbers being so uniformly bad, you may be wondering why any company would ever voluntarily choose to use LIFO (during times of inflation). It might further surprise you to learn that, since 1974, hundreds of U.S. companies have voluntarily switched from FIFO to LIFO and that over half of the large companies in the United States currently use LIFO in accounting for at least some of their inventories.

Over the entire life of a company from its beginning with zero inventory until its final closeout when the last inventory item is sold is aggregate cost of goods sold more, less, or the same as aggregate purchases? How is this relationship affected by the inventory cost flow assumption used?

The attractiveness of LIFO can be explained with one word TAXES. If a company uses LIFO in a time of rising prices, reported cost of goods sold is higher, reported taxable income is lower, and cash paid for income taxes is lower. In fact, LIFO was invented in the 1930s in the United States for the sole purpose of allowing companies to lower their income tax payments. In most instances where accounting alternatives exist, firms are allowed to use one accounting method for tax purposes and another for financial reporting. In 1939, however, when the Internal Revenue Service (IRS) approved the use of LIFO, it ruled that firms may use LIFO for tax purposes only if they also use LIFO for financial reporting purposes. Therefore, companies must choose between reporting higher profits and paying higher taxes with FIFO or reporting lower profits and paying lower taxes with LIFO.

## to summarize

Some companies can use specific identification as a method of valuing inventory and determining cost of goods sold. In most cases, however, an accountant must make an inventory cost flow assumption in order to compute cost of goods sold and ending inventory. With FIFO (first in, first out), it is assumed that the oldest inventory units are sold first. With LIFO (last in, first out), it is assumed that the newest units are sold first. With the average cost assumption, the total goods available for sale are used to compute an average cost per unit for the period; this average cost is then used in calculating cost of goods sold and ending inventory. LIFO produces a better matching of current revenues and current expenses in the income statement; FIFO yields a balance sheet inventory value that is closer to the current value of the inventory. The primary practical attraction of LIFO is that it lowers income tax payments.

**5** Use financial ratios to evaluate a company s inventory level.

# ASSESSING HOW WELL COMPANIES MANAGE THEIR INVENTORIES

Money tied up in the form of inventories cannot be used for other purposes. Therefore, companies try hard to minimize the necessary investment in inventories while at the same time assuring that they have enough inventory on hand to meet customer demand. In recent years a method of inventory management called just-in-time (JIT) inventory has become popular. JIT, which will be described in Chapter 7 in the management accounting section of this text, is an inventory management method that attempts to have exactly enough inventory arrive just in time for sale. Its purpose is to minimize the amount of money needed to purchase and hold inventory.

## Evaluating the Level of Inventory

**inventory turnover** A measure of the efficiency with which inventory is managed; computed by dividing cost of goods sold by average inventory for a period.

Two widely used measurements of how effectively a company is managing its inventory are the inventory turnover ratio and number of days sales in inventory. **Inventory turnover** provides a measure of how many times a company turns over, or replenishes, its inventory during a year. The calculation is similar to the accounts receivable turnover discussed in Chapter 6. It is calculated by dividing cost of goods sold by average inventory as follows:

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

The average inventory amount is the average of the beginning and ending inventory balances. The inventory turnover ratios for **SEARS**, **SAFEWAY**, and **CATERPILLAR** for 1999 are as follows (dollar amounts are in billions):

| | Sears | Safeway | Caterpillar |
|---|---|---|---|
| Cost of goods sold | $27.212 | $20.349 | $14.481 |
| Beginning inventory | 5.322 | 1.856 | 2.842 |
| Ending inventory | 5.648 | 2.445 | 2.594 |
| Average inventory | 5.485 | 2.151 | 2.718 |
| Inventory turnover | 4.96 | 9.46 | 5.33 |

From this analysis, you can see that Safeway, the supermarket, turns its inventory over more frequently than Sears, the department store, and Caterpillar, the equipment dealer. This result is what we would have predicted given that the companies are in different businesses and have different types of inventory.

**number of days sales in inventory** An alternative measure of how well inventory is being managed; computed by dividing 365 days by the inventory turnover ratio.

Inventory turnover can also be converted into the **number of days sales in inventory**. This ratio is computed by dividing 365, or the number of days in a year, by the inventory turnover, as follows:

$$\text{Number of Days Sales in Inventory} = \frac{365}{\text{Inventory Turnover}}$$

Computing this ratio for Sears, Safeway, and Caterpillar yields the following:

| | Number of Days Sales in Inventory |
|---|---|
| Sears | 73.6 days |
| Safeway | 38.6 days |
| Caterpillar | 68.5 days |

**caution**

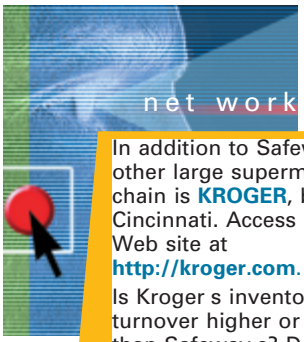
Sometimes these two inventory ratios are computed using ending inventory rather than average inventory. This is appropriate if the inventory balance does not change much from the beginning to the end of the year.

business environment essay

**Phar-Mor Cooks Up Inventory Fraud**

Recall the introductory scenario from Chapter 5 that detailed the rise and fall of **PHAR-MOR**. That case resulted from an elaborate inventory fraud perpetrated by top management over several years. Phar-Mor s inventory ostensibly grew from $11 million in 1989 to $153 million in 1991, but much of this inventory had been created by fabricating financial data and misleading the external auditors.

Because Phar-Mor did not keep a perpetual inventory system, the company estimated the value of its inventory by using a ratio involving the cost of the items purchased and their retail value. Inventory was counted, valued at its retail price, and then multiplied by this ratio to obtain an approximation of its cost. Phar-Mor officials manipulated the ratio to ensure that inventory was inflated and that cost of goods sold was understated. In addition, when Phar-Mor s accountants made journal entries reducing Inventory (with a credit), the corresponding debit (which should have




In addition to Safeway, another large supermarket chain is **KROGER**, based in Cincinnati. Access Kroger s Web site at **http://kroger.com**.

Is Kroger s inventory turnover higher or lower than Safeway s? Does Kroger use LIFO or FIFO?

Individuals analyzing how effective a company s inventory management is would compare these ratios with those of other firms in the same industry and with comparable ratios for the same firm in previous years.

## Impact of the Inventory Cost Flow Assumption

As mentioned previously, in times of rising prices, the use of LIFO results in higher cost of goods sold and lower inventory values. All three of the companies in the ratio illustration on the previous page use LIFO. Each company includes supplemental disclosures in the financial statement notes that allow users to compute what reported inventory and cost of goods sold would have been if the company had used FIFO. To illustrate the impact that the choice of inventory cost flow assumption can have on the reported numbers, consider the following comparison for Caterpillar for 1999:

| | Reported LIFO Numbers | Numbers if Using FIFO |
|---|---|---|
| Cost of goods sold | $14.481 | $12.481 |
| Average inventory | 2.718 | 4.718 |
| Inventory turnover | 5.33 | 2.65 |
| Number of days sales in inventory | 68.5 days | 137.7 days |

The difference in cost of goods sold for 1999 is not great because inflation was relatively low in that year. However, the difference in the reported average inventory balance reflects the cumulative effect of inflation for the many years since Caterpillar first started using LIFO. The impact on the ratio values is dramatic. Of course, the difference between LIFO and FIFO is not as great for most companies as shown here for Caterpillar, but the general point is that the choice of inventory cost flow assumption can affect the conclusions drawn about the financial statements if the financial statement user is not careful.

## Number of Days Purchases in Accounts Payable

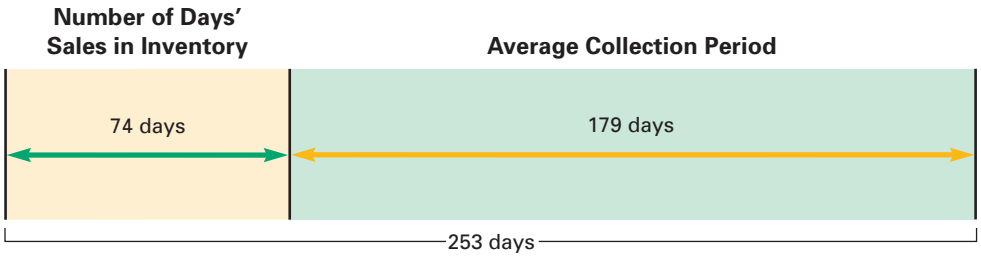
In Chapter 6, we introduced the average collection period ratio. In this chapter we have discussed the computation of the number of days sales in inventory. Taken together, these two ratios indicate the length of a firm s operating cycle. The two ratios measure the amount of time it takes, on average, from the point when inventory is purchased to the point when cash is col-

been made to Cost of Goods Sold) was made to an asset account (with the clever name of Cookies ). This cookies account would then be broken into smaller pieces and reallocated to individual stores. Because the Cookies were broken into pieces, the smaller numbers avoided attracting the external auditors attention. Another tactic used by Phar-Mor was to artificially inflate the inventory numbers at the company s fiscal year-end (June 30) and attribute the inflated numbers to a buildup of inventory in preparation for the 4th of July.

These falsifications and more resulted in financial statement fraud amounting to over $1 billion in losses. The external auditors in the case were found guilty of fraud not because the audit firm was an active participant in the scheme, but because the auditors were reckless with regard to the conduct of the audit.

**Sources:** Most of these facts relating to Phar-Mor appeared in Gabriella Stern, Chicanery at Phar-Mor Ran Deep, Close Look at Discounter Shows, *The Wall Street Journal*, January 20, 1994, p. 1; Mark F. Murray, When a Client is a Liability, *Journal of Accountancy*, September 1992, pp. 54 58.

lected from the customer who purchased the inventory. For example, Sears 253-day operating cycle for 1999 is depicted below:




Is Sears operating cycle too long, too short, or just right? That is difficult to tell without information from prior years and from competitors. But by including one additional ratio in the analysis, we can learn more about how Sears is managing its operating cash flow. The **number of days purchases in accounts payable** reveals the average length of time that elapses between the purchase of inventory on account and the cash payment for that inventory. The number of days purchases in accounts payable is computed by dividing total inventory purchases by average accounts payable and then dividing the result into 365 days:

**number of days purchases in accounts payable** A measure of how well operating cash flow is being managed; computed by dividing total inventory purchases by average accounts payable and then dividing 365 days by the result.

$$\text{Number of Days Purchases in Accounts Payable} = \frac{365 \text{ Days}}{\text{Purchases/Average Accounts Payable}}$$

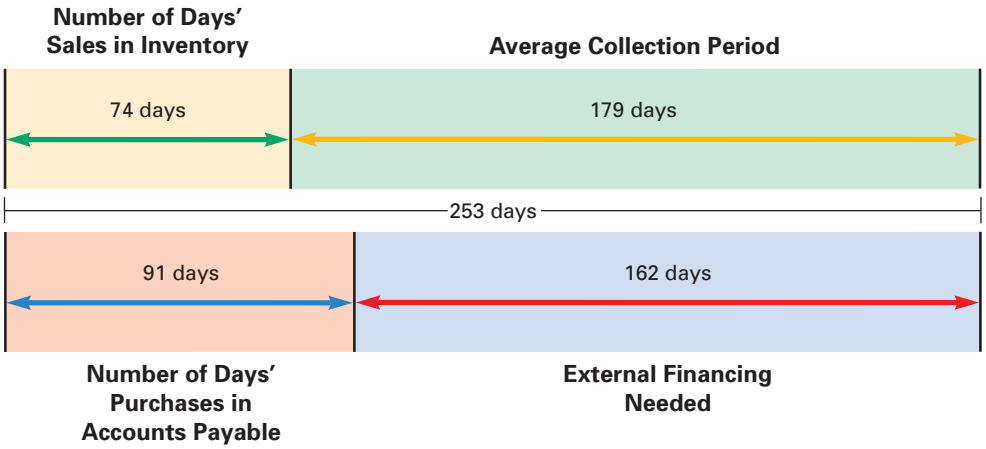
The amount of inventory purchased during a year is computed by combining cost of goods sold with the change in the inventory balance for the year. If inventory increased during the year, then inventory purchases are equal to cost of goods sold plus the increase in the inventory balance. Similarly, if inventory decreased during the year, inventory purchases are equal to cost of goods sold minus the decrease in the inventory balance.

The number of days purchases in accounts payable indicates how long a company takes to pay its suppliers. For example, Sears number of days purchases in accounts payable for 1999 is computed as follows (dollar figures are in millions):

| | |
|---|---|
| Cost of goods sold for 1999 | $27,212 |
| Add increase in inventory during 1999 | 326 |
| Inventory purchases during 1999 | $27,538 |
| Average accounts payable during 1999 | $ 6,862 |

$$\text{Number of Days Purchases in Accounts Payable} = \frac{365 \text{ Days}}{\$27{,}538/\$6{,}862}$$

$$= 91 \text{ Days}$$




**caution**

This computation of the number of days purchases in accounts payable assumes that only inventory purchases on account are included in accounts payable. It is likely that the accounts payable balance also includes such items as supplies purchased on account. Nevertheless, the purchase of inventory is typically the most significant element of accounts payable.

Sears must pay its suppliers in 91 days but must wait for 253 days before receiving the cash from its customers. Sears must finance the remaining 162 days (253 days − 91 days) of its operating cycle with bank loans or additional stockholder investment or by charging interest to those using its credit card debt. Sears is famous for using the last option charging customers for the use of credit. In 1999 alone, Sears reported revenue from its credit card activities of over $4.3 billion.

These calculations illustrate that proper management of the sales/collection cycle, coupled with prudent financing of inventory purchases on account, can reduce a company s reliance on external financing.

## to summarize

Proper inventory management seeks a balance between keeping a lower inventory level to avoid tying up excess resources and maintaining a sufficient inventory balance to ensure smooth business operation. Companies assess how well their inventory is being managed by using two ratios: (1) inventory turnover and (2) number of days sales in inventory. A company s choice of inventory cost flow assumption can significantly affect the values of these inventory ratios; intelligent ratio analysis requires considering possible accounting differences among companies. Comparison of the average collection period, number of days sales in inventory, and number of days purchases in accounts payable reveals how much of a company s operating cycle it must finance through external financing.

## expanded material

**Thus far we have defined inventory and cost of goods sold; we have described the perpetual and periodic inventory systems, three inventory cost flow assumptions, and the use of financial ratios to evaluate a company s manage-**

**ment of its inventory. These topics are all sufficient for a basic understanding of the nature of inventory and cost of goods sold, as well as the most common ways of accounting for inventory. The four topics that will be discussed in the expanded material are (1) the impact of more complicated inventory errors, (2) complications that arise in using LIFO and average cost with a perpetual inventory system, (3) reporting inventory at amounts below cost, and (4) a method for estimating inventory without taking a physical count.**

**6**

Analyze the impact of inventory errors on reported cost of goods sold.

## FURTHER COVERAGE OF INVENTORY ERRORS

Incorrect amounts for inventory on the balance sheet and cost of goods sold on the income statement can result from errors in counting inventories, recording inventory transactions, or both. The effect of an error in the end-of-period inventory count was discussed earlier in the chapter. To examine the effects of other types of inventory errors, we will assume that Richfield Company had the following inventory records for 2003:

| | |
|---|---|
| Inventory balance, January 1, 2003 | $ 8,000 |
| Purchases through December 30, 2003 | 20,000 |
| Inventory balance, December 30, 2003 | 12,000 |

We will further assume that on December 31 the company purchased and received another $1,000 of inventory. The following comparison shows the kinds of inventory situations that might result:

| The $1,000 of merchandise purchased on December 31 was | Incorrect* not recorded as a purchase and not counted as inventory | Incorrect recorded as a purchase but not counted as inventory | Incorrect not recorded as a purchase but counted as inventory | Correct recorded as a purchase and counted as inventory |
|---|---|---|---|---|
| Beginning inventory | $ 8,000 (OK)** | $ 8,000 (OK) | $ 8,000 (OK) | $ 8,000 (OK) |
| Net purchases | 20,000 (↓) | 21,000 (OK) | 20,000 (↓) | 21,000 (OK) |
| Cost of goods available for sale | $28,000 (↓) | $29,000 (OK) | $28,000 (↓) | $29,000 (OK) |
| Ending inventory | 12,000 (↓) | 12,000 (↓) | 13,000 (OK) | 13,000 (OK) |
| Cost of goods sold | $16,000 (OK) | $17,000 (↑) | $15,000 (↓) | $16,000 (OK) |

*This calculation produces the correct cost of goods sold but by an incorrect route the errors in purchases and ending inventory offset each other.
**For the amount, ↓ indicates it is too low, ↑ means it is too high, and OK means it is correct.

In these calculations, the beginning inventory plus purchases equals the cost of goods that were available for sale. In other words, everything that could be sold must have either been on hand at the beginning of the period (beginning inventory) or purchased during the period (net purchases). Then, ending inventory (what wasn t sold) was subtracted from the cost of goods available for sale. The result is the cost of goods that were sold. Everything on hand (available) had to be either sold or left in ending inventory. From this example, you can see how inventory and cost of goods sold can be misstated by the improper recording of inventory purchases or counting of inventory.

Similar errors can occur when inventory is sold. If a sale is recorded but the merchandise remains in the warehouse and is counted in the ending inventory, cost of goods sold will be understated, whereas gross margin and net income will be overstated. If a sale is not recorded but inventory is shipped and not counted in the ending inventory, gross margin and net income will be understated, and cost of goods sold will be overstated.

To illustrate these potential inventory errors, we will again consider the data of Richfield Company. Note that sales figures have been added and the ending inventory and the 2003 purchases now correctly include the $1,000 purchase of merchandise made on December 31, 2003.

| | |
|---|---|
| Sales revenue through December 30, 2003 (200% of cost) | $32,000 |
| Inventory balance, January 1, 2003 | 8,000 |
| Net purchases during 2003 | 21,000 |
| Inventory balance, December 31, 2003 | 13,000 |

In addition, assume that on December 31, inventory that cost $1,000 was sold for $2,000. The merchandise was delivered to the buyer on December 31. The following analysis shows the kinds of situations that might result:

| The $2,000 sale on December 31 was | **Incorrect** not recorded and the merchandise was counted as inventory | **Incorrect** recorded and the merchandise was counted as inventory | **Incorrect** not recorded and the merchandise was excluded from inventory | **Correct** recorded and the merchandise was excluded from inventory |
|---|---|---|---|---|
| Sales revenue | $32,000 (↓)* | $34,000 (OK) | $32,000 (↓) | $34,000 (OK) |
| Cost of goods sold: | | | | |
| Beginning inventory | $ 8,000 (OK) | $ 8,000 (OK) | $ 8,000 (OK) | $ 8,000 (OK) |
| Net purchases | 21,000 (OK) | 21,000 (OK) | 21,000 (OK) | 21,000 (OK) |
| Cost of goods available for sale | $29,000 (OK) | $29,000 (OK) | $29,000 (OK) | $29,000 (OK) |
| Ending inventory | 13,000 (↑) | 13,000 (↑) | 12,000 (OK) | 12,000 (OK) |
| Cost of goods sold | $16,000 (↓) | $16,000 (↓) | $17,000 (OK) | $17,000 (OK) |
| Gross margin | $16,000 (↓) | $18,000 (↑) | $15,000 (↓) | $17,000 (OK) |

*For the amount, ↓ indicates it is too low, ↑ means it is too high, and OK means it is correct.

To reduce the possibility of these types of inventory cutoff errors, most businesses close their warehouses at year-end while they count inventory. If they are retailers, they will probably count inventory after hours. During the inventory counting period, businesses do not accept or ship merchandise, nor do they enter purchase or sales transactions in their accounting records.

As explained, an error in inventory results in cost of goods sold being overstated or understated. This error has the opposite effect on gross margin and, hence, on net income. For example, if at the end of the accounting period $2,000 of inventory is not counted, cost of goods sold will be $2,000 higher than it should be, and gross margin and net income will be understated by $2,000. Such inventory errors affect gross margin and net income not only in the current year but in the following year as well. A recording delay resulting in an understatement of purchases in one year, for example, results in an overstatement in the next year.

To illustrate how inventory errors affect gross margin and net income, let us first assume the following correct data for Salina Corporation:

| | | **2002** | | **2003** |
|---|---|---|---|---|
| Sales revenue | | $50,000 | | $40,000 |
| Cost of goods sold: | | | | |
| Beginning inventory | $10,000 | | $ 5,000 | |
| Net purchases | 20,000 | | 25,000 | |
| Cost of goods available for sale | $30,000 | | $30,000 | |
| Ending inventory | 5,000 | | 10,000 | |
| Cost of goods sold | | 25,000 | | 20,000 |
| Gross margin | | $25,000 | | $20,000 |
| Operating expenses | | 10,000 | | 10,000 |
| Net income | | $15,000 | | $10,000 |

Now suppose that ending inventory in 2002 was overstated; that is, instead of the correct amount of $5,000, the count erroneously showed $7,000 of inventory on hand. The following analysis shows the effect of the error on net income in both 2002 and 2003:

| | | 2002 | | 2003 |
|---|---|---|---|---|
| Sales revenue | | $50,000 | | $40,000 |
| Cost of goods sold: | | | | |
| Beginning inventory | $10,000 | | $ 7,000 (↑) | |
| Net purchases | 20,000 | | 25,000 | |
| Cost of goods available for sale | $30,000 | | $32,000 (↑) | |
| Ending inventory | 7,000 (↑)* | | 10,000 | |
| Cost of goods sold | | 23,000 (↓) | | 22,000 (↑) |
| Gross margin | | $27,000 (↑) | | $18,000 (↓) |
| Operating expenses | | 10,000 | | 10,000 |
| Net income | | $17,000 (↑) | | $ 8,000 (↓) |

*For the amount, ↑ means it is too high, ↓ means it is too low.

When the amount of ending inventory is overstated (as it was in 2002), both gross margin and net income are overstated by the same amount ($2,000 in 2002). If the ending inventory amount had been understated, net income and gross margin would also have been understated, again by the same amount.

Since the ending inventory in 2002 becomes the beginning inventory in 2003, the net income and gross margin for 2003 are also misstated. In 2003, however, beginning inventory is overstated, so gross margin and net income are understated, again by $2,000. Thus, the errors in the two years offset or counterbalance each other, and if the count taken at the end of 2003 is correct, income in subsequent years will not be affected by this error.

## to summarize

Inventory errors can have a significant effect on cost of goods sold, gross margin, and net income. In addition, a misstatement of an ending inventory balance affects net income, both in the current year and in the next year. Errors in beginning and ending inventory have the opposite effect on cost of goods sold, gross margin, and net income. Errors in inventory correct themselves after two years if the physical count at the end of the second year shows the correct amount of ending inventory for that period.

**7**

Describe the complications that arise when LIFO or average cost is used with a perpetual inventory system.

## COMPLICATIONS OF THE PERPETUAL METHOD WITH LIFO AND AVERAGE COST

In the Nephi Company bicycle example used earlier in the chapter, the simplifying assumption was made that all 28 bicycles were sold at the end of the month. In essence, this is the assumption made when a periodic inventory system is used goods are assumed to be sold at the end of the period because the exact time when particular goods are sold is not recorded. Computation of average cost and LIFO under a perpetual system is complicated because the average cost of units available for sale changes every time a purchase is made, and the identification of the last in units also changes with every purchase.

These perpetual system complications are illustrated below using the same Nephi Company example used earlier, but now assuming that sales occurred at different times during the month.

Sept. 1 Beginning inventory consisted of 10 bicycles costing $200 each.
3 Purchased 8 bicycles costing $250 each.
5 Sold 12 bicycles, $400 each.
18 Purchased 16 bicycles costing $300 each.
20 Purchased 10 bicycles costing $320 each.
25 Sold 16 bicycles, $400 each.

When a perpetual system is used and sales occur during the period, the identification of the last in units must be evaluated at the time of each individual sale, as follows:

| | | |
|---|---|---|
| September 5 sale of 12 bicycles, identification of last in units: | | |
| 8 bicycles purchased on September 3, $250 each | $2,000 | |
| 4 bicycles in beginning inventory, $200 each | 800 | |
| | | $2,800 |
| September 25 sale of 16 bicycles, identification of last in units: | | |
| 10 bicycles purchased on September 20, $320 each | $3,200 | |
| 6 bicycles purchased on September 18, $300 each | 1,800 | |
| | | 5,000 |
| Total perpetual LIFO cost of goods sold | | $7,800 |

This $7,800 amount for LIFO cost of goods sold under a perpetual inventory system compares to the $8,500 LIFO cost of goods sold computed earlier in the chapter assuming a periodic inventory system. Again, the difference arises because the last in units are identified at the end of the period with a periodic system; with a perpetual system, the last in units are identified at the time of each individual sale.

A similar difference arises with the average cost method because, with a perpetual system, a new average cost per unit must be determined at the time each individual sale is made. This process is illustrated as follows:

| | | |
|---|---|---|
| September 5 sale of 12 bicycles, determination of average cost: | | |
| 10 bicycles in beginning inventory, $200 each | $2,000 | |
| 8 bicycles purchased on September 3, $250 each | 2,000 | |
| Total cost of goods available for sale on September 5 | | $4,000 |

Average cost on September 5: $4,000 ÷ 18 bicycles = $222.22 per bicycle
September 5 cost of goods sold:
12 bicycles × $222.22 per bicycle = $2,667 (rounded)

| | | |
|---|---|---|
| September 25 sale of 16 bicycles, determination of average cost: | | |
| 6 (18 − 12) bicycles; remaining cost ($4,000 − $2,667) | $1,333 | |
| 16 bicycles purchased on September 18, $300 each | 4,800 | |
| 10 bicycles purchased on September 20, $320 each | 3,200 | |
| Total cost of goods available for sale on September 25 | | $9,333 |

Average cost on September 25: $9,333 ÷ 32 bicycles = $291.66 per bicycle
September 25 cost of goods sold:
16 bicycles × $291.66 per bicycle = $4,667 (rounded)
Total cost of goods sold: $2,667 + $4,667 = $7,334

This $7,334 cost of goods sold under the perpetual average method compares with $7,636 cost of goods sold under the periodic average method. Again, the difference is that one overall average cost for all goods available for sale during the period is used with a periodic system; with a perpetual system, a new average cost is computed at the time of each sale.

By the way, no complications arise in using FIFO with a perpetual system. This is because, no matter when sales occur, the first in units are always the same ones. So, FIFO

periodic and FIFO perpetual yield the same numbers for cost of goods sold and ending inventory.

Because of the complications associated with computing perpetual LIFO and perpetual average cost, many businesses that use average cost or LIFO for financial reporting purposes use a simple FIFO assumption in maintaining their day-to-day perpetual inventory records. The perpetual FIFO records are then converted to periodic average cost or LIFO for the financial reports.

## to summarize

Using the average cost and LIFO inventory cost flow assumptions with a perpetual inventory system leads to some complications. These complications arise because the identity of the last in units changes with each new inventory purchase, as does the average cost of units purchased up to that point.

**8**

Apply the lower-of-cost-or-market method of accounting for inventory.

## REPORTING INVENTORY AT AMOUNTS BELOW COST

All the inventory costing alternatives we have discussed in this chapter have one thing in common: they report inventory at cost. Occasionally, however, it becomes necessary to report inventory at an amount that is less than cost. This happens when the future value of the inventory is in doubt when it is damaged, used, or obsolete, or when it can be replaced new at a price that is less than its original cost.

### Inventory Valued at Net Realizable Value

**net realizable value** The selling price of an item less reasonable selling costs.

When inventory is damaged, used, or obsolete, it should be reported at no more than its **net realizable value**. This is the amount the inventory can be sold for, minus any selling costs. Suppose, for example, that an automobile dealer has a demonstrator car that originally cost $18,000 and now can be sold for only $16,000. The car should be reported at its net realizable value. If a commission of $500 must be paid to sell the car, the net realizable value is $15,500, or $2,500 less than cost. This loss is calculated as follows:

| | | |
|---|---|---|
| Cost | | $18,000 |
| Estimated selling price | $16,000 | |
| Less selling commission | 500 | 15,500 |
| Loss | | $ 2,500 |

To achieve a good matching of revenues and expenses, a company must recognize this estimated loss as soon as it is determined that an economic loss has occurred (even before the car is sold). The journal entry required to recognize the loss and reduce the inventory amount of the car is:

| | | |
|---|---|---|
| Loss on Write-Down of Inventory (Expense) | 2,500 | |
| Inventory | | 2,500 |
| *To write down inventory to its net realizable value.* | | |

By writing down inventory to its net realizable value, a company recognizes a loss when it happens and shows no profit or loss when the inventory is finally sold. Using net realizable values means that assets are not being reported at amounts that exceed their future economic benefits.

## Inventory Valued at Lower of Cost or Market

Inventory must also be written down to an amount below cost if it can be replaced new at a price that is less than its original cost. In the electronics industry, for instance, the costs of computers and compact disc players have fallen dramatically in recent years. When goods remaining in ending inventory can be replaced with identical goods at a lower cost, the lower unit cost must be used in valuing the inventory (provided that the replacement cost is not higher than net realizable value or lower than net realizable value minus a normal profit). This is known as the **lower-of-cost-or-market (LCM) rule**. (In a sense, a more precise name would be the lower-of-actual-or-replacement-cost rule.)

**lower-of-cost-or-market (LCM) rule** A basis for valuing inventory at the lower of original cost or current market value.

The **ceiling**, or maximum market amount at which inventory can be carried on the books, is equivalent to net realizable value, which is the selling price less estimated selling costs. The ceiling is imposed because it makes no sense to value an inventory item above the amount that can be realized upon sale. For example, assume that a company purchased an inventory item for $10 and expected to sell it for $14. If the selling costs of the item amounted to $3, the ceiling or net realizable value would be $11 ($14 − $3).

**ceiling** The maximum market amount at which inventory can be carried on the books; equal to net realizable value.

The **floor** is defined as the net realizable value minus a normal profit. Thus, if the inventory item costing $10 had a normal profit margin of 20%, or $2, the floor would be $9 (net realizable value of $11 less normal profit of $2). This is the lowest amount at which inventory should be carried in order to prevent showing losses in one period and large profits in subsequent periods.

**floor** The minimum market amount at which inventory can be carried on the books; equal to net realizable value minus a normal profit.

In applying this LCM rule, you can follow certain basic guidelines:

1. Define market value as:
   a. replacement cost, if it falls between the ceiling and the floor.
   b. the floor, if the replacement cost is less than the floor.
   c. the ceiling, if the replacement cost is higher than the ceiling.
   (As a practical matter, when replacement cost, ceiling, and floor are compared, market is always the middle value.)
2. Compare the defined market value with the original cost and choose the lower amount.

The following chart gives four separate examples of the application of the LCM rule; the resulting LCM amount is highlighted in each case.

| Item | Number of Items in Inventory | Original Cost (LIFO, FIFO, etc.) | Market | | |
|---|---|---|---|---|---|
| | | | Replacement Cost | Net Realizable Value (Ceiling) | Net Realizable Value Minus Normal Profit (Floor) |
| A | 10 | $17 | $16 | $15 | $10 |
| B | 8 | 21 | 18 | 23 | 16 |
| C | 30 | 26 | 21 | 31 | 22 |
| D | 20 | 19 | 16 | 34 | 25 |

The LCM rule can be applied in one of three ways: (1) by computing cost and market figures for each item in inventory and using the lower of the two amounts in each case, (2) by computing cost and market figures for the total inventory and then applying the LCM rule to that total, or (3) by applying the LCM rule to categories of inventory. For a clothing store, categories of inventory might be all shirts, all pants, all suits, or all dresses.

To illustrate, we will use the above data to show how the LCM rule would be applied to each inventory item separately and to total inventory. (The third method is similar to the second, except that it may involve several totals, one for each category of inventory.)

| Item | Number of Items in Inventory | Original Cost | Market Value | LCM for Individual Items |
|---|---|---|---|---|
| A | 10 | $17 × 10 units = $ 170 | $15 × 10 units = $ 150 | $ 150 |
| B | 8 | $21 × 8 units = 168 | $18 × 8 units = 144 | 144 |
| C | 30 | $26 × 30 units = 780 | $22 × 30 units = 660 | 660 |
| D | 20 | $19 × 20 units = 380 | $25 × 20 units = 500 | 380 |
| | | $1,498 | $1,454 | $1,334 |
| | | | $44 | |
| | | $164 | | |

Using the first method, applying the LCM rule to individual items, inventory is valued at $1,334, a write-down of $164 from the original cost. With the second method, using total inventory, the lower of total cost ($1,498) or total market value ($1,454) is used for a write-down of $44. The write-down is smaller when total inventory is used because the increase in market value of $120 in item D offsets decreases in items A, B, and C. In practice, each of the three methods is acceptable, but once a method has been selected, it should be followed consistently.

The journal entry to write down the inventory to the lower of cost or market applying the LCM rule to individual items is:

| | | |
|---|---|---|
| Loss on Write-Down of Inventory (Expense) | 164 | |
| Inventory | | 164 |
| *To write down inventory to lower of cost or market.* | | |

The amount of this entry would have been $44 if the LCM rule had been applied to total inventory.

The LCM rule has gained wide acceptance because it reports inventory on the balance sheet at amounts that are consistent with future economic benefits. With this method, losses are recognized when they occur, not necessarily when a sale is made.

## to summarize

The recorded amount of inventory should be written down (1) when it is damaged, used, or obsolete and (2) when it can be replaced (purchased new) at an amount that is less than its original cost. In the first case, inventory is reported at its net realizable value, an amount that allows a company to break even when the inventory is sold. In the second case, inventory is written down to the lower of cost or market. When using the lower-of-cost-or-market rule, market is defined as falling between the ceiling and floor. Ceiling is defined as the net realizable value; floor is net realizable value minus a normal profit margin. In no case should inventory be reported at an amount that exceeds the ceiling or is less than the floor. These reporting alternatives are attempts to show assets at amounts that reflect realistic future economic benefits.

9

Explain the gross margin method of estimating inventories.

# METHOD OF ESTIMATING INVENTORIES

We have assumed that the number of inventory units on hand is known by a physical count that takes place at the end of each accounting period. For the periodic inventory method, this physical count is the only way to determine how much inventory is on hand at the end of a period. For the perpetual inventory method, the physical count verifies the quantity on hand or indicates the amount of inventory shrinkage or theft. There are times, however, when a company needs to know the dollar amount of ending inventory, but a physical count is either impossible or impractical. For example, many firms prepare quarterly, or even monthly, financial statements, but it is too expensive and time-consuming to count the inventory at the end of each period. In such cases, if the perpetual inventory method is being used, the balance in the inventory account is usually assumed to be correct. With the periodic inventory method, however, some estimate of the inventory balance must be made. A common method of estimating the dollar amount of ending inventory is the gross margin method.

## The Gross Margin Method

**gross margin method** A procedure for estimating the amount of ending inventory; the historical relationship of cost of goods sold to sales revenue is used in computing ending inventory.

With the **gross margin method**, a firm uses available information about the dollar amounts of beginning inventory and purchases, and the historical gross margin percentage to estimate the dollar amounts of cost of goods sold and ending inventory.

To illustrate, we will assume the following data for Payson Brick Company:

| | |
|---|---|
| Net sales revenue, January 1 to March 31 | $100,000 |
| Inventory balance, January 1 | 15,000 |
| Net purchases, January 1 to March 31 | 65,000 |
| Gross margin percentage (historically determined percentage of net sales) | 40% |

With this information, the dollar amount of inventory on hand on March 31 is estimated as follows:

| | | Dollars | Percentage of Sales |
|---|---|---|---|
| Net sales revenue | | $100,000 | 100% |
| Cost of goods sold: | | | |
| Beginning inventory | $15,000 | | |
| Net purchases | 65,000 | | |
| Total cost of goods available for sale | $80,000 | | |
| Ending inventory ($80,000 − $60,000) | 20,000 (3)* | | |
| Cost of goods sold ($100,000 − $40,000) | | 60,000 (2)* | 60% |
| Gross margin ($100,000 × 0.40) | | $ 40,000 (1)* | 40% |

*The numbers indicate the order of calculation.

In this example, gross margin is first determined by calculating 40% of sales (step 1). Next, cost of goods sold is found by subtracting gross margin from sales (step 2). Finally, the dollar amount of ending inventory is obtained by subtracting cost of goods sold from total cost of goods available for sale (step 3). Obviously, the gross margin method of estimating cost of goods sold and ending inventory assumes that the historical gross margin percentage is appropriate for the current period. This assumption is a realistic one in many fields of business. In cases where the gross margin percentage has changed, this method should be used with caution.

The gross margin method of estimating ending inventories is also useful when a fire or other calamity destroys a company s inventory. In these cases, the dollar amount of inventory lost must be determined before insurance claims can be made. The dollar amounts of sales, purchases, and

beginning inventory can be obtained from prior years financial statements and from customers, suppliers, and other sources. Then the gross margin method can be used to estimate the dollar amount of inventory lost.

## to summarize

The gross margin method is a common technique for estimating the dollar amount of inventory. The historical gross margin percentage is used in conjunction with sales to estimate cost of goods sold. This estimated cost of goods sold amount is subtracted from cost of goods available for sale to yield an estimate of ending inventory.

## review of learning objectives

**1 Identify what items and costs should be included in inventory and cost of goods sold.** Inventory is composed of goods held for sale in the normal course of business. Cost of goods sold is the cost of inventory sold during the period. For a manufacturing firm, the three types of inventory are raw materials, work in process, and finished goods. All costs incurred in producing and getting inventory ready to sell should be added to inventory cost. The costs associated with the selling effort itself are operating expenses of the period. Inventory should be recorded on the books of the company holding legal title. Goods in transit belong to the company paying for the shipping. Goods on consignment belong to the supplier/owner, not to the business holding the inventory for possible sale. At the end of an accounting period, the total cost of goods available for sale during the period must be allocated between ending inventory and cost of goods sold.

**2 Account for inventory purchases and sales using both a perpetual and a periodic inventory system.** With a perpetual inventory system, the inventory account is adjusted for every sale or purchase transaction. Discounts on purchases, returns of merchandise, and the cost of transporting goods intended for resale into the firm are also adjustments made directly to the inventory account. With a periodic inventory system, inventory-related items are recorded in temporary holding accounts that are closed to Inventory at the end of the period. The closing entries for a periodic system involve closing Purchases, Freight In, Purchase Returns, and Purchase Discounts to Inventory, and then adjusting the inventory account balance to reflect the appropriate amount given the results of the ending inventory physical count.

**3 Calculate cost of goods sold using the results of an inventory count and understand the impact of errors in ending inventory on reported cost of goods sold.** Obtaining an accurate inventory amount involves counting the physical units and then properly computing the cost of those units. Special care must be taken in dealing with goods in transit and consigned goods. When a perpetual inventory system is used, the ending inventory count provides an opportunity to compute inventory shrinkage. When ending inventory is not correctly counted, both cost of goods sold and net income will be reported incorrectly. For example, an overstatement in ending inventory leads to an overstatement in reported net income.

**4 Apply the four inventory cost flow alternatives: specific identification, FIFO, LIFO, and average cost.** The four major costing methods used in accounting for inventories are specific identification, FIFO, LIFO, and average cost. Each of these may result in different dollar amounts of ending inventory, cost of goods sold, gross margin, and net income. A firm may choose any costing alternative without regard to the way goods physically flow through that firm. With FIFO, the oldest units are assumed to be sold first; with LIFO, the newest units are assumed to be sold first. LIFO matches current revenues and current expenses in the income statement; FIFO results in current values being reported in the balance sheet. During an inflationary period, LIFO provides the lowest reported income and, therefore, lower taxes.

**5 Use financial ratios to evaluate a company s inventory level.** Companies assess how well their inventory is being managed by using two ratios: (1) inventory turnover and (2) number of days sales in inventory. Inventory turnover is computed as cost of goods sold divided by average inventory; it tells how many times during the period the company turned over, or replenished, its inventory. The number of days sales

in inventory is computed by dividing 365 by the inventory turnover value. A company s choice of inventory cost flow assumption can significantly affect the values of these inventory ratios. The sum of the average collection period and the number of days sales in inventory is the length of time between the purchase of inventory and the collection of cash from the sale of that inventory. Comparing this sum to the number of days purchases in accounts payable reveals how much of a company s operating cycle it must finance through external financing.

expanded material

**6 Analyze the impact of inventory errors on reported cost of goods sold.** Inventory errors can have a significant effect on reported cost of goods sold, gross margin, and net income. In addition, a misstatement of an ending inventory balance affects net income, both in the current year and in the next year. Errors in beginning and ending inventory have the opposite effect on cost of goods sold, gross margin, and net income. Errors in inventory correct themselves after two years if the physical count at the end of the second year shows the correct amount of ending inventory for that period.

**7 Describe the complications that arise when LIFO or average cost is used with a perpetual inventory system.** Using the average cost and LIFO inventory cost flow assumptions with a perpetual inventory system leads to some complications. These complications arise because the identity of the last in units changes with each new inventory purchase, as does the average cost of units purchased up to that point.

**8 Apply the lower-of-cost-or-market method of accounting for inventory.** Sometimes inventory must be reported at amounts below cost. This occurs (1) when inventory is damaged, used, or obsolete, or (2) when the replacement cost drops below the original inventory cost. In the first case, inventory is valued at a net realizable value; in the second, it is valued at the lower of cost or market. When lower-of-cost-or-market valuation is used, market is defined as the replacement cost of the inventory; in no case can the value be greater than the item s net realizable value (the ceiling) or less than net realizable value minus a normal profit (the floor).

**9 Explain the gross margin method of estimating inventories.** Although most firms take a physical count of inventory at the end of each year, they sometimes need to estimate the value of inventory prior to year-end. The gross margin method is a common technique for estimating the dollar amount of inventory. The historical gross margin percentage is used in conjunction with sales to estimate cost of goods sold. This estimated cost of goods sold amount is subtracted from cost of goods available for sale to yield an estimate of ending inventory.

## key terms and concepts

average cost 308
consignment 297
cost of goods available for sale 298
cost of goods sold 295
FIFO (first in, first out) 308
finished goods 296
FOB (free-on-board) destination 297
FOB (free-on-board) shipping point 297
inventory 295
inventory shrinkage 305
inventory turnover 313
LIFO (last in, first out) 308
net purchases 304
number of days purchases in accounts payable 315
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## review problem

**Inventory Cost Flow Alternatives**

Lehi Wholesale Distributors buys printers from manufacturers and sells them to office supply stores. During January 2003, its periodic inventory records showed the following:

Jan. 1 Beginning inventory consisted of 26 printers at $200 each.
10 Purchased 10 printers at $220 each.
15 Purchased 20 printers at $250 each.
28 Purchased 9 printers at $270 each.
31 Sold 37 printers.

*Required:* Calculate ending inventory and cost of goods sold, using:

1. FIFO inventory.
2. LIFO inventory.
3. Average cost.

**Solution**

When computing ending inventory and cost of goods sold, it is usually easiest to get an overview first. The following calculations are helpful:

| | |
|---|---|
| Beginning inventory, 26 units at $200 each | $ 5,200 |
| Purchases: 10 units at $220 | $ 2,200 |
| 20 units at $250 | 5,000 |
| 9 units at $270 | 2,430 |
| Total purchases (39 units) | $ 9,630 |
| Cost of goods available for sale (65 units) | $14,830 |
| Less ending inventory (28 units) | ? |
| Cost of goods sold (37 units) | ? |

Given a beginning inventory, only ending inventory and cost of goods sold will vary with the different inventory costing alternatives. Because ending inventory and cost of goods sold are complementary numbers whose sum must equal total goods available for sale, you can calculate only one of the two missing numbers in each case and then compute the other by subtracting the first number from goods available for sale. Thus, in the calculations that follow, we will always calculate ending inventory first.

### 1. FIFO Inventory

Since we know that 28 units are left in ending inventory, we look for the last 28 units purchased because the first units purchased would all be sold. The last 28 units purchased were:

| | |
|---|---|
| 9 units at $270 each on January 28 = | $2,430 |
| 19 units at $250 each on January 15 = | 4,750 |
| Ending inventory | $7,180 |

Ending inventory is $7,180, and cost of goods sold is $7,650 ($14,830 − $7,180).

### 2. LIFO Inventory

The first 28 units available would be considered the ending inventory (since the last ones purchased are the first ones sold). The first 28 units available were:

| | |
|---|---|
| Beginning inventory: 26 units at $200 = | $5,200 |
| January 10 purchase: 2 units at $220 = | 440 |
| Ending inventory | $5,640 |

Thus,

| | |
|---|---|
| Cost of goods available for sale | $14,830 |
| Ending inventory | 5,640 |
| Cost of goods sold | $ 9,190 |

**3. Average Cost**
The total cost of goods available for sale is divided by total units available for sale to get a weighted average cost:

$$\frac{\text{Cost of Goods Available for Sale}}{\text{Units Available for Sale}} = \frac{\$14{,}830}{65} = \$228.15 \text{ per Unit}$$

| | |
|---|---|
| Cost of goods available for sale | $14,830 |
| Less ending inventory (28 units at $228.15) | 6,388 |
| Cost of goods sold (37 units at $228.15) | $ 8,442 |

Note: With the average cost alternative, the computed amounts may vary slightly due to rounding.

expanded material

**Perpetual Inventory Cost Flow Alternatives**

Using the above example, we assume Lehi Wholesale Distributors buys printers from manufacturers and sells them to office supply stores. During January 2003, its inventory records showed the following:

Jan. 1 Beginning inventory consisted of 26 printers at $200 each.
10 Purchased 10 printers at $220 each.
12 Sold 15 printers.
15 Purchased 20 printers at $250 each.
17 Sold 14 printers.
19 Sold 8 printers.
28 Purchased 9 printers at $270 each.

*Required:* Calculate ending inventory and cost of goods sold, using:

1. Perpetual FIFO inventory.
2. Perpetual LIFO inventory.
3. Perpetual average cost.

**Solution**

When computing ending inventory and cost of goods sold, it is usually easiest to get an overview first. The following calculations are helpful:

| | | |
|---|---|---|
| Beginning inventory, 26 units at $200 each | | $ 5,200 |
| Purchases: 10 units at $220 | $ 2,200 | |
| 20 units at $250 | 5,000 | |
| 9 units at $270 | 2,430 | |
| Total purchases (39 units) | | $ 9,630 |
| Cost of goods available for sale (65 units) | | $14,830 |
| Less ending inventory (28 units) | | ? |
| Cost of goods sold (37 units) | | ? |

Given a beginning inventory, only ending inventory and cost of goods sold will vary with the different inventory costing alternatives. Because ending inventory and cost of goods sold are complementary numbers whose sum must equal total goods available for sale, you can calculate only one of the two missing numbers in each case, and then compute the other by subtracting the first number from goods available for sale. Thus, in the calculations that follow, we will always calculate ending inventory first.

**1. Perpetual FIFO Inventory**
With this alternative, records must be maintained throughout the period, as shown. The final calculation is:

| | |
|---|---|
| Cost of goods available for sale | $14,830 |
| Ending inventory [(19 × $250) + (9 × $270)] | 7,180 |
| Cost of goods sold | $ 7,650 |

**PERPETUAL FIFO CALCULATIONS**

| | Purchased | | | Sold | | | Remaining | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Number of Units | Unit Cost | Total Cost | Number of Units | Unit Cost | Total Cost | Number of Units | Unit Cost | Total Cost |
| Beginning inventory | | | | | | | 26 | $200 | $5,200 |
| January 10 | 10 | $220 | $2,200 | | | | 36 | 26 at $200<br>10 at $220 | $7,400 |
| 12 | | | | 15 | 15 at $200 | $3,000 | 21 | 11 at $200<br>10 at $220 | $4,400 |
| 15 | 20 | $250 | 5,000 | | | | 41 | 11 at $200<br>10 at $220<br>20 at $250 | $9,400 |
| 17 | | | | 14 | 11 at $200<br>3 at $220 | 2,860 | 27 | 7 at $220<br>20 at $250 | $6,540 |
| 19 | | | | 8 | 7 at $220<br>1 at $250 | 1,790 | 19 | 19 at $250 | $4,750 |
| 28 | 9 | $270 | 2,430 | | | | 28 | 19 at $250<br>9 at $270 | $7,180 |
| Totals | 39 | | $9,630 | 37 | | $7,650 | | | |

### 2. Perpetual LIFO Inventory

With this alternative, as shown below, the calculation is:

| | |
|---|---|
| Cost of goods available for sale | $14,830 |
| Ending inventory | 6,230 |
| Cost of goods sold | $ 8,600 |

**PERPETUAL LIFO CALCULATIONS**

| | Purchased | | | Sold | | | Remaining | | |
|---|---|---|---|---|---|---|---|---|---|
| Date | Number of Units | Unit Cost | Total Cost | Number of Units | Unit Cost | Total Cost | Number of Units | Unit Cost | Total Cost |
| Beginning inventory | | | | | | | 26 | $200 | $5,200 |
| January 10 | 10 | $220 | $2,200 | | | | 36 | 26 at $200<br>10 at $220 | $7,400 |
| 12 | | | | 15 | 10 at $220<br>5 at $200 | $3,200 | 21 | 21 at $200 | $4,200 |
| 15 | 20 | $250 | 5,000 | | | | 41 | 21 at $200<br>20 at $250 | $9,200 |
| 17 | | | | 14 | 14 at $250 | 3,500 | 27 | 21 at $200<br>6 at $250 | $5,700 |
| 19 | | | | 8 | 6 at $250<br>2 at $200 | 1,900 | 19 | 19 at $200 | $3,800 |
| 28 | 9 | $270 | 2,430 | | | | 28 | 19 at $200<br>9 at $270 | $6,230 |
| Totals | 39 | | $9,630 | 37 | | $8,600 | | | |

**3. Perpetual Average Cost**

With this alternative, a new average cost of inventory items must be calculated each time a purchase is made, as shown in the following table:

| | |
|---|---|
| Cost of goods available for sale | $14,830 |
| Ending inventory | 6,748 |
| Cost of goods sold | $ 8,082 |

**PERPETUAL AVERAGE COST CALCULATIONS**

| | Purchased | Sold | Remaining | Computations |
|---|---|---|---|---|
| Beginning inventory | | | 26 units at $200.00 = $5,200 | |
| January 10 | 10 units at $220 = $2,200 | | 36 units at $205.56 = $7,400 | $5,200 + $2,200 = $7,400; $7,400 ÷ 36 = $205.56 |
| 12 | | 15 units at $205.56 = $3,083 | 21 units at $205.56 = $4,317 | |
| 15 | 20 units at $250 = $5,000 | | 41 units at $227.24 = $9,317 | $4,317 + $5,000 = $9,317; $9,317 ÷ 41 = $227.24 |
| 17 | | 14 units at $227.24 = $3,181 | 27 units at $227.24 = $6,135 | |
| 19 | | 8 units at $227.24 = $1,818 | 19 units at $227.24 = $4,318 | |
| 28 | 9 units at $270 = $2,430 | | 28 units at $241.00 = $6,748 | $4,318 + $2,430 = $6,748; $6,748 ÷ 28 = $241.00 |

## discussion questions

1. In wholesale and retail companies, inventory is composed of the items that have been purchased for resale. What types of inventory does a manufacturing firm have?
2. What comprises the cost of inventory?
3. Why is it more difficult to account for the inventory of a manufacturing firm than for that of a merchandising firm?
4. Who owns merchandise during shipment under the terms FOB shipping point?
5. When is the cost of inventory transferred from an asset to an expense?
6. Which inventory method (perpetual or periodic) provides better control over a firm s inventory?
7. Is the accounting for purchase discounts and purchase returns the same with the perpetual and the periodic inventory methods? If not, what are the differences?
8. Are the costs of transporting inventory into and out of a firm treated the same way? If not, what are the differences?
9. Why is it usually important to take advantage of purchase discounts?
10. Why are the closing entries for inventory under a periodic system more complicated than those for a perpetual system?
11. Why is it necessary to physically count inventory when the perpetual inventory method is being used?
12. What adjusting entries to Inventory are required when the perpetual inventory method is used?
13. What is the effect on net income when goods held on consignment are included in the ending inventory balance?
14. Explain the difference between cost flow and the movement of goods.
15. Which inventory cost flow alternative results in paying the least amount of taxes when prices are rising?
16. Would a firm ever be prohibited from using one inventory costing alternative for tax purposes and another for financial reporting purposes?
17. Why is it necessary to know which inventory cost flow alternative is being used before the financial performances of different firms can be compared?
18. What can the inventory turnover ratio tell us?

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19. Is net income under- or overstated when purchased merchandise is counted and included in the inventory balance but not recorded as a purchase?
20. Is net income under- or overstated if inventory is sold and shipped but not recorded as a sale?
21. Why do the LIFO and average cost inventory cost flow assumptions result in different inventory numbers for the perpetual and periodic inventory methods?
22. When should inventory be valued at its net realizable value?
23. When should inventory be valued at the lower of cost or market?
24. When firms cannot count their inventory, how do they determine how much inventory is on hand for the financial statements?

## discussion cases

### CASE 7-1 WHY USE A PERPETUAL SYSTEM?

You are a consultant for the ABC Consulting Company. You have been hired by Eddie s Electronics, a company that owns 25 electronics stores selling radios, televisions, compact disc players, stereos, and other electronic equipment. Since the company began business ten years ago, it has been using a periodic inventory system. However, Mark Eddie just returned from a seminar where some of his competitors told him he should be using the perpetual inventory method. Mr. Eddie is not sure he should believe his competitors. He wants you to advise him about his inventory choices and make a recommendation about the inventory method he should use.

### CASE 7-2 SHOULD WE REDUCE INVENTORY?

It has now been two years since you advised Mr. Eddie to switch to the perpetual inventory method. He is very happy with the additional information he has about inventory levels and theft. He has hired you for advice once again. This time, Mr. Eddie has been to an inventory management seminar where he heard that most companies have too much money tied up in inventory. He wonders if his company could be much more profitable if it reduced its inventory levels. What would you tell him?

## exercises

### EXERCISE 7-1 GOODS ON CONSIGNMENT

Company A has consignment arrangements with Supplier B and with Customer C. In particular, Supplier B ships some of its goods to Company A on consignment, and Company A ships some of its goods to Customer C on consignment. At the end of 2003, Company A s accounting records showed:

| | |
|---|---|
| Goods on consignment from Supplier B. . . . . | $ 8,000 |
| Goods on consignment with Customer C . . . . . | $10,000 |

1. If a physical count of inventory reveals that $30,000 of goods are on hand, what amount of ending inventory should be reported?
2. If the amount of the beginning inventory for the year was $27,000 and purchases during the year were $59,000, then what is the cost of goods sold for the year? (Assume the ending inventory from question 1.)

3. If, instead of these facts, Company A had only $4,000 of goods on consignment with Customer C, but had $10,000 of consigned goods from Supplier B, and physical goods on hand totaled $36,000, what would the correct amount of the ending inventory be?
4. With respect to question 3, if beginning inventory totaled $24,000 and the cost of goods sold was $47,500, what were the purchases?

## EXERCISE 7-2 RECORDING SALES TRANSACTIONS PERPETUAL INVENTORY METHOD

On June 24, 2003, Hansen Company sold merchandise to Jill Selby for $80,000 with terms 2/10, n/30. On June 30, Selby paid $39,200, receiving the cash discount on her payment, and returned $16,000 of merchandise, claiming that it did not meet contract terms.

Assuming that Hansen uses the perpetual inventory method, record the necessary journal entries on June 24 and June 30. The cost of merchandise to Hansen Company is 70% of its selling price.

## EXERCISE 7-3 PERPETUAL INVENTORY METHOD

Oakwood Furniture purchases and sells dining room furniture. Its management uses the perpetual method of inventory accounting. Journalize the following transactions that occurred during April 2003:

Apr. 2 Purchased on account $15,000 of inventory with payment terms 2/10, n/30, and paid $250 in cash to have it shipped from the vendor s warehouse to the Oakwood showroom.
5 Sold inventory costing $3,000 for $5,400 on account.
10 Paid $6,860 on account (from April 2 purchase).
14 Returned two damaged tables purchased on April 2 (costing $800 each) to the vendor.
19 Received payment of $1,000 from customers.
20 Paid the balance of the account from April 2 purchase.
22 Sold inventory costing $6,000 for $7,000 on account.
26 A customer returned a dining room set that she decided didn t match her home. She paid $2,500 for it, and its cost to Oakwood was $1,500.

Assuming the balance in the inventory account is $8,000 on April 1, and no other transactions relating to inventory occurred during the month, what is the inventory balance at the end of April?

## EXERCISE 7-4 ADJUSTING INVENTORY (PERPETUAL METHOD)

Deer Company s perpetual inventory records show an inventory balance of $120,000. Deer Company s records also show cost of goods sold totaling $240,000. A physical count of inventory on December 31, 2003, showed $92,000 of ending inventory.

Adjust the inventory records assuming that the perpetual inventory method is used.

## EXERCISE 7-5 RECORDING SALES TRANSACTIONS PERIODIC INVENTORY METHOD

On June 24, 2003, Mowen Company sold merchandise to Jack Simpson for $80,000 with terms 2/10, n/30. On June 30, Simpson paid $39,200, receiving the cash discount on his payment, and returned $16,000 of merchandise, claiming that it did not meet contract terms.

Assuming that Mowen Company uses the periodic inventory method, record the necessary journal entries on June 24 and June 30.

## EXERCISE 7-6 ADJUSTING INVENTORY AND CLOSING ENTRIES (PERIODIC METHOD)

As of December 31, 2003, Deer Company had the following account balances:

| | |
|---|---|
| Inventory (beginning) | $120,000 |
| Purchases | 220,000 |
| Purchase returns | 4,000 |

A physical count of inventory on December 31, 2003, showed $92,000 of ending inventory. Prepare the closing entries that are needed to adjust the inventory records and close the related purchases accounts, assuming that the periodic inventory method is used.

## EXERCISE 7-7

### COST OF GOODS SOLD CALCULATION

The accounts of Meeks Company have the following balances for 2003:

| | |
|---|---|
| Purchases | $260,000 |
| Inventory, January 1, 2003 | 40,000 |
| Purchase returns | 7,640 |
| Purchase discounts | 880 |
| Freight in | 12,400 |
| Freight out (selling expense) | 2,400 |
| Cash | 4,000 |

The inventory count on December 31, 2003, is $48,000. Using the information given, compute the cost of goods sold for Meeks Company for 2003.

## EXERCISE 7-8

### COST OF GOODS SOLD CALCULATIONS

Complete the Cost of Goods Sold section for the income statements of the following five companies:

| | Able Company | Baker Company | Carter Company | Delmont Company | Eureka Company |
|---|---|---|---|---|---|
| Beginning inventory | $16,000 | $24,800 | _____ | _____ | $19,200 |
| Purchases | 26,500 | _____ | $43,000 | $89,500 | _____ |
| Purchase returns | _____ | 1,000 | 1,800 | 200 | 2,200 |
| Cost of goods available for sale | 42,100 | _____ | 58,300 | _____ | 81,500 |
| Ending inventory | _____ | 22,200 | 15,200 | 28,800 | _____ |
| Cost of goods sold | 33,400 | 67,200 | _____ | 93,400 | 68,400 |

## EXERCISE 7-9

### JOURNALIZING INVENTORY TRANSACTIONS

Fleming Machinery uses the periodic method of inventory accounting.

1. Journalize the following transactions relating to the company s purchases in 2003:

| | |
|---|---|
| Jan. 21 | Purchased $8,000 of inventory on credit, terms 2/10, n/30. |
| 30 | Paid $7,840 to pay off the debt from the January 21 purchase. |
| Mar. 14 | Purchased $125,000 of inventory on credit, terms 2/10, n/30. Paid $500 in cash for transportation. |
| Apr. 1 | Returned defective machinery worth $20,000 to manufacturer. |
| 13 | Paid $105,000 to pay off the debt from the March 14 purchase. |

2. Assuming these were the only purchases in 2003, compute the cost of goods sold. Beginning inventory was $13,000 and ending inventory was $22,000.

## EXERCISE 7-10

### ADJUSTING INVENTORY RECORDS FOR PHYSICAL COUNTS

Spartacas, Inc., which uses the perpetual inventory method, recently had an agency count its inventory of frozen chickens. The agency left the following inventory sheet:

| Type of Merchandise | Date Purchased | Quantity on Hand | Unit Cost | Inventory Amount |
|---|---|---|---|---|
| Chicken grade A | 2/12/03 | 30 | $5.00 | (a) |
| Chicken grade B | 2/18/03 | 16 | (b) | $54.40 |
| Chicken grade C | 2/08/03 | (c) | $2.50 | $60.00 |
| Chicken grade D | 2/15/03 | 46 | (d) | $52.90 |

Complete the inventory calculations for Spartacas (items a d) and provide the journal entry necessary to adjust ending inventory, if necessary. The balance in Inventory before the physical count was $305.05.

## EXERCISE 7-11 SPECIFIC IDENTIFICATION METHOD

E s Diamond Shop is computing its inventory and cost of goods sold for November 2003. At the beginning of the month, these items were in stock:

| | Quantity | Cost | Total |
|---|---|---|---|
| Ring A | 8 | $600 | $ 4,800 |
| Ring A | 10 | 650 | 6,500 |
| Ring B | 5 | 300 | 1,500 |
| Ring B | 6 | 350 | 2,100 |
| Ring B | 3 | 450 | 1,350 |
| Ring C | 7 | 200 | 1,400 |
| Ring C | 8 | 250 | 2,000 |
| | | | $19,650 |

During the month, the shop purchased four type A rings at $600, two type B rings at $450, and five type C rings at $300 and made the following sales:

| Ring Type | Quantity Sold | Price | Cost |
|---|---|---|---|
| A | 2 | $1,000 | $600 |
| A | 3 | 1,050 | 600 |
| A | 1 | 1,200 | 650 |
| B | 2 | 850 | 450 |
| B | 2 | 800 | 350 |
| C | 4 | 450 | 200 |
| C | 3 | 500 | 250 |
| C | 1 | 550 | 250 |

Because of the high cost per item, E s uses specific identification inventory costing.

1. Calculate the cost of goods sold and ending inventory balances for November.
2. Calculate the gross margin for the month.

## EXERCISE 7-12 INVENTORY COSTING METHODS

For each of the descriptions listed below, identify the inventory costing method to which it applies. The costing methods are: average cost, LIFO, and FIFO.

1. The value of ending inventory does not include the cost of the most recently acquired goods.
2. In a period of rising prices, cost of goods sold is highest.
3. In a period of rising prices, ending inventory is highest.
4. Ending inventory is between the levels of the other two methods.
5. The balance of the inventory account may be unrealistic because inventory on hand is valued at old prices.

## EXERCISE 7-13 FIFO AND LIFO INVENTORY COSTING

Jefferson s Jewelry Store is computing its inventory and cost of goods sold for November 2003. At the beginning of the month, the following jewelry items were in stock (rings were purchased in the order listed):

| | Quantity | Cost | Total |
|---|---|---|---|
| Ring A | 8 | $600 | $ 4,800 |
| Ring A | 10 | 650 | 6,500 |
| Ring B | 5 | 300 | 1,500 |
| Ring B | 6 | 350 | 2,100 |
| Ring B | 3 | 450 | 1,350 |
| Ring C | 7 | 200 | 1,400 |
| Ring C | 8 | 250 | 2,000 |
| | | | $19,650 |

During the month, the following rings were purchased: four type A rings at $600, two type B rings at $450, and five type C rings at $300. Also during the month, these sales were made:

| Ring Type | Quantity Sold | Price |
|---|---|---|
| A | 2 | $1,000 |
| A | 3 | 1,050 |
| A | 1 | 1,200 |
| B | 2 | 850 |
| B | 2 | 800 |
| C | 4 | 450 |
| C | 3 | 500 |
| C | 1 | 550 |

Jefferson s uses the periodic inventory method. Calculate the cost of goods sold and ending inventory balances for November using FIFO and LIFO.

## EXERCISE 7-14 FIFO, LIFO, AND AVERAGE COST CALCULATIONS (PERIODIC INVENTORY METHOD)

The following transactions took place with respect to Model M computers in Alpha s Computer Store during April 2003:

| | | |
|---|---|---|
| April 1 | Beginning inventory | 40 computers at $1,200 |
| 5 | Purchase of Model M computers | 15 computers at $1,300 |
| 11 | Purchase of Model M computers | 16 computers at $1,350 |
| 24 | Purchase of Model M computers | 10 computers at $1,400 |
| 30 | Sale of Model M computers | 32 computers at $3,000 |

Assuming the periodic inventory method, compute cost of goods sold and ending inventory using the following inventory costing alternatives: (a) FIFO, (b) LIFO, and (c) average cost.

## EXERCISE 7-15 INVENTORY RATIOS

The following data are available for 2003, regarding the inventory of two companies:

| | Atkins Computers | Burbank Electronics |
|---|---|---|
| Beginning inventory | $ 40,000 | $ 80,000 |
| Ending inventory | 48,000 | 95,000 |
| Cost of goods sold | 690,000 | 910,000 |

Compute inventory turnover and number of days sales in inventory for both companies. Which company is handling its inventory more efficiently?

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## EXERCISE 7-16 INVENTORY ERRORS

As the accountant for Mt. Pleasant Enterprises, you are in the process of preparing the income statement for the year ended December 31, 2003. In doing so, you have noticed that merchandise costing $2,000 was sold for $4,000 on December 31.

Before the effects of the $4,000 sale were taken into account, the relevant income statement figures were:

| | |
|---|---|
| Sales revenue | $80,000 |
| Beginning inventory | 18,000 |
| Purchases | 44,000 |
| Ending inventory | 13,000 |

1. Prepare a partial income statement through gross margin under each of the following three assumptions:
   a. The sale is recorded in the 2003 accounting record; the inventory is included in the ending physical inventory count.
   b. The sale is recorded in 2003; the inventory is not included in ending inventory.
   c. The sale is not recorded in the 2003 accounting records; the merchandise is not included in the ending inventory count.
2. Under the given circumstances, which of the three assumptions is correct?
3. Which assumption overstates gross margin (and therefore net income)?

## EXERCISE 7-17 FIFO, LIFO, AND AVERAGE COST CALCULATIONS (PERPETUAL INVENTORY METHOD)

The July 2003 inventory records of Mario s Bookstore showed the following:

| | | | | |
|---|---|---|---|---|
| July 1 | Beginning inventory | 28,000 | at $2.00 = | $56,000 |
| 5 | Sold | 4,000 | | |
| 13 | Purchased | 6,000 | at $2.25 = | 13,500 |
| 17 | Sold | 3,000 | | |
| 25 | Purchased | 8,000 | at $2.50 = | 20,000 |
| 27 | Sold | 5,000 | | |
| | | | | $89,500 |

1. Using the perpetual inventory method, compute the ending inventory and cost of goods sold balances with (a) FIFO, (b) LIFO, and (c) average cost. Compute unit costs to the nearest cent.
2. Which of the three alternatives is best? Why?

## EXERCISE 7-18 LOWER OF COST OR MARKET

Prepare the necessary journal entries to account for the purchases and year-end adjustments of the inventory of Payson Manufacturing Company. All purchases are made on account. Payson uses the periodic inventory method.

1. Purchased 50 standard widgets for $8 each to sell at $14 per unit.
2. Purchased 15 deluxe widgets at $20 each to sell for $30 per unit.
3. At the end of the year, the standard widgets could be purchased for $9 and are selling for $15.
4. At the end of the year, the deluxe widgets could be purchased for $10 and are selling for $16 per unit. Selling costs are $4 per unit, and normal profit is $6 per unit. Inventory is 15 units.

5. At the end of the second year, standard widgets could be purchased for $6 and are selling for $8. Selling costs are $1 per widget, and normal profit is $2 per widget. Inventory is 50 units.
6. At the end of the second year, the deluxe widgets could be purchased for $9 and are selling for $20. Selling costs and normal profit remain as in (4). Inventory is 15 units.

## EXERCISE 7-19 LOWER OF COST OR MARKET

Broderick Company sells lumber. Inventory cost data per 1,000 board feet of lumber for the Broderick Company are as follows:

| Item | Plywood | Oak | Pine | Redwood |
|---|---|---|---|---|
| Quantity on hand | 25 | 20 | 43 | 12 |
| Original cost | $600 | $2,000 | $800 | $1,400 |
| Current replacement cost | 600 | 1,800 | 700 | 1,800 |
| Net realizable value | 500 | 1,900 | 800 | 1,600 |
| Net realizable value minus normal profit | 400 | 1,850 | 600 | 1,300 |

1. By what amount, if any, should each item (considered separately) be written down?
2. Make the appropriate journal entry (or entries):
   a. Assuming that each inventory item is considered separately.
   b. Assuming that LCM is applied to total inventory.

## EXERCISE 7-20 GROSS MARGIN METHOD OF ESTIMATING INVENTORY

Jason Company needs to estimate the inventory balance for its quarterly financial statements. The periodic inventory method is used. Records show that quarterly sales totaled $400,000, beginning inventory was $80,000, and net purchases totaled $280,000; the historical gross margin percentage has averaged approximately 40%.

1. What is the approximate amount of ending inventory?
2. If a physical count shows only $100,000 in inventory, what could be the explanation for the difference?

## EXERCISE 7-21 ESTIMATING INVENTORY AMOUNTS

Sandra s Boutique was recently destroyed by fire. For insurance purposes, she must determine the value of the destroyed inventory. She knows the following information about her 2003 operations before the fire occurred:

| | |
|---|---|
| Beginning inventory | $11,500 |
| Net purchases | 62,000 |
| Sales | 84,500 |
| Profit margin | 30% |

Estimate the cost of Sandra s destroyed inventory.

## EXERCISE 7-22 ESTIMATING INVENTORY

Ted Smyth manages an electronics store. He suspects that some employees are stealing items from inventory. Determine the cost of the missing inventory. The following information is available from the accounting records:

| | |
|---|---|
| Beginning inventory | $ 300,000 |
| Sales | 2,000,000 |
| Net purchases | 1,600,000 |
| Actual ending inventory | 450,000 |
| Historical profit margin | 30% |

## EXERCISE 7-23 ANALYSIS OF THE OPERATING CYCLE

The following information was taken from the records of Dallen Company for the year 2004:

| | |
|---|---|
| Sales | $600,000 |
| Beginning inventory | 114,000 |
| Ending inventory | 87,000 |
| Beginning accounts receivable | 68,000 |
| Average collection period | 44 days |
| Beginning accounts payable | 36,000 |
| Ending accounts payable | 42,000 |
| Gross profit percentage | 37% |

1. Compute the number of days sales in inventory.
2. Compute the ending balance in Accounts Receivable.
3. Compute the number of days purchases in accounts payable.
4. How many days elapse, on average, between the time Dallen must pay its suppliers for inventory purchases and the time Dallen collects cash from its customers for the sale of that same purchased inventory?
5. Repeat the computations in (1), (2), (3), and (4) using the end-of-year balance sheet balances rather than the average balances.

# problems

## PROBLEM 7-1 WHAT SHOULD BE INCLUDED IN INVENTORY?

Demetrius is trying to compute the inventory balance for the December 31, 2002, financial statements of his automotive parts shop. He has computed a tentative balance of $52,600 but suspects that several adjustments still need to be made. In particular, he believes that the following could affect his inventory balance:

a. A shipment of goods that cost $3,000 was received on December 28, 2002. It was properly recorded as a purchase in 2002 but not counted with the ending inventory.
b. Another shipment of goods (FOB destination) was received on January 2, 2003, and cost $800. It was properly recorded as a purchase in 2003 but was counted with 2002 s ending inventory.
c. A $2,800 shipment of goods to a customer on January 3 was recorded as a sale in 2003 but was not included in the December 31, 2002, ending inventory balance. The goods cost $2,000.
d. The company had goods costing $6,000 on consignment with a customer, and $5,000 of merchandise was on consignment from a vendor. Neither amount was included in the $52,600 figure.
e. The following amounts represent merchandise that was in transit on December 31, 2002, and recorded as purchases and sales in 2002 but not included in the December 31 inventory.
    1. Ordered by Demetrius, $1,800, FOB destination.
    2. Ordered by Demetrius, $600, FOB shipping point.
    3. Sold by Demetrius, cost $4,000, FOB shipping point.
    4. Sold by Demetrius, cost $4,600, FOB destination.

*Required:*

1. Determine the correct amount of ending inventory at December 31, 2002.
2. Assuming net purchases (before any adjustment, if any) totaled $86,400 and beginning inventory (January 1, 2002) totaled $31,600, determine the cost of goods sold in 2002.

## PROBLEM 7-2

### PERPETUAL AND PERIODIC JOURNAL ENTRIES

The following transactions for Goodmonth Tire Company occurred during the month of March 2003:

a. Purchased 500 automobile tires on account at a cost of $40 each for a total of $20,000.
b. Purchased 300 truck tires on account at a cost of $80 each for a total of $24,000.
c. Paid cash of $1,300 for separate shipping costs on the automobile tires purchased in (a). The supplier of the truck tires included the shipping costs in the $80 price.
d. Returned 12 automobile tires to the supplier because they were defective.
e. Paid for the automobile tires. A 1% discount was given on the amount owed. (HINT: Remember that some of the automobile tires were returned.) Payment terms were 1/20, n/30.
f. Paid for half the truck tires, receiving a discount of 2%. Terms were 2/10, n/30.
g. Paid the remaining balance owed on the truck tires. No discount was received because payment was made after the discount period.
h. Sold on account 400 automobile tires at a price of $90 each for a total of $36,000.
i. Sold on account 200 truck tires at a price of $150 each for a total of $30,000.
j. Accepted return of 7 automobile tires from dissatisfied customers.

*Required:*

1. Prepare journal entries to account for the above transactions assuming a periodic inventory system.
2. Prepare journal entries to account for the above transactions assuming a perpetual inventory system.
3. Assume that inventory levels at the beginning of March (before these transactions) were 100 automobile tires that cost $40 each and 70 truck tires that cost $80 each. Also, assume that a physical count of inventory at the end of March revealed that 184 automobile tires and 164 truck tires were on hand. Given these inventory amounts, prepare the closing entries to account for inventory and related accounts as of the end of March.

## PROBLEM 7-3

### INCOME STATEMENT CALCULATIONS

Waukesha Company has gross sales of 160% of cost of goods sold. It has also provided the following information for the calendar year 2003:

| | |
|---|---|
| Inventory balance, January 1, 2003 | $100,000 |
| Total cost of goods available for sale | 300,000 |
| Sales returns | 13,000 |
| Purchase returns | 5,000 |
| Freight in | 2,000 |
| Sales (net of returns) | 407,000 |
| Operating expenses | 27,000 |

*Required:* Using the available information, compute the following. (Ignore income taxes.)

1. Gross sales for 2003.
2. Net purchases and gross purchases for 2003.
3. Cost of goods sold for 2003.
4. Inventory balance at December 31, 2003.
5. Gross margin for 2003.
6. Net income for 2003.

## PROBLEM 7-4 INCOME STATEMENT CALCULATIONS

| | Company A | Company B | Company C | Company D |
|---|---|---|---|---|
| Sales revenue | $2,000 | (4) _____ | $480 | $1,310 |
| Beginning inventory | 200 | 76 | 0 | 600 |
| Purchases | (1) _____ | 423 | 480 | 249 |
| Purchase returns | (20) | (19) | (0) | (8) _____ |
| Ending inventory | 300 | 110 | (6) _____ | 195 |
| Cost of goods sold | 1,200 | 370 | (7) _____ | (9) _____ |
| Gross margin | (2) _____ | (5) _____ | 155 | (10) _____ |
| Operating expenses | 108 | 22 | 34 | 129 |
| Net income | (3) _____ | 107 | 121 | 546 |

*Required:* Complete the income statement calculations by filling in all missing numbers.

## PROBLEM 7-5 INVENTORY COST FLOW ALTERNATIVES

Stocks, Inc., sells weight-lifting equipment. The sales and inventory records of the company for January through March 2003 were as follows:

| | Weight Sets | Unit Cost | Total Cost |
|---|---|---|---|
| Beginning inventory, Jan. 1 | 460 | $30 | $13,800 |
| Purchase, Jan. 16 | 110 | 32 | 3,520 |
| Sale, Jan. 25 ($45 per set) | 216 | | |
| Purchase, Feb. 16 | 105 | 36 | 3,780 |
| Sale, Feb. 27 ($40 per set) | 307 | | |
| Purchase, March 10 | 150 | 28 | 4,200 |
| Sale, March 30 ($50 per set) | 190 | | |

*Required:*

1. Determine the amounts for ending inventory, cost of goods sold, and gross margin under the following costing alternatives. Use the periodic inventory method, which means that all sales are assumed to occur at the end of the period no matter when they actually occurred. Round amounts to the nearest dollar.
   a. FIFO
   b. LIFO
   c. Average cost
2. **Interpretive Question:** Which alternative results in the highest gross margin? Why?

## PROBLEM 7-6 PERIODIC INVENTORY COST FLOW METHOD

Dudley Wholesale buys peaches from farmers and sells them to canneries. During August 2003, Dudley s inventory records showed the following:

| | | Cases | Price |
|---|---|---|---|
| August 1 | Beginning inventory | 4,100 | $10.50 |
| 4 | Purchase | 1,500 | 11.00 |
| 9 | Sale | 950 | 19.95 |
| 13 | Purchase | 1,000 | 11.00 |
| 19 | Sale | 1,450 | 19.95 |
| 26 | Purchase | 1,700 | 11.50 |
| 30 | Sale | 1,900 | 19.95 |

Dudley Wholesale uses the periodic inventory method to account for its inventory, which means that all sales are assumed to occur at the end of the period no matter when they actually occurred.

*Required:* Calculate the cost of goods sold and ending inventory using the following cost flow alternatives. (Calculate unit costs to the nearest cent.)

1. FIFO
2. LIFO
3. Average cost

## PROBLEM 7-7 CALCULATING AND INTERPRETING INVENTORY RATIOS

Captain Geech Boating Company sells fishing boats to fishermen. Its beginning and ending inventories for 2003 are $462 million and $653 million, respectively. It had cost of goods sold of $1,578 million for the year ended December 31, 2003. Merchant Marine Company also sells fishing boats. Its beginning and ending inventories for the year 2003 are $120 million and $90 million, respectively. It had cost of goods sold of $1,100 million for the year ended December 31, 2003.

*Required:*

1. Calculate the inventory turnover and number of days sales in inventory for the two companies.
2. **Interpretive Question:** Are the results of these ratios what you expected? Which company is managing its inventory more efficiently?

expanded material

## PROBLEM 7-8 THE EFFECT OF INVENTORY ERRORS

The accountant for Steele Company reported the following accounting treatments for several purchase transactions (FOB shipping point) that took place near December 31, 2003, the company s year-end:

| Date Inventory Was Shipped | Was the Purchase Recorded in the Books on or before December 31, 2003? | Amount | Was the Inventory Counted and Included in Inventory Balance on December 31, 2003? |
|---|---|---|---|
| 2003: | | | |
| December 26 . . . . . | Yes | $1,100 | Yes |
| December 29 . . . . . | Yes | 800 | No |
| December 31 . . . . . | No | 1,800 | Yes |
| 2004: | | | |
| January 1 . . . . . | No | 300 | Yes |
| January 1 . . . . . | Yes | 3,000 | No |
| January 1 . . . . . | No | 600 | No |

*Required:*

1. If Steele Company s records reported purchases and ending inventory balances of $80,800 and $29,800, respectively, for 2003, what would the proper amounts in these accounts have been?
2. What would be the correct amount of cost of goods sold for 2003, if the beginning inventory balance on January 1, 2003, was $20,200?
3. By how much would cost of goods sold be over- or understated if the corrections in question (1) were not made?

## PROBLEM 7-9 CORRECTION OF INVENTORY ERRORS

The annual reported income for Salazar Company for the years 2000 2003 is shown here. However, a review of the inventory records reveals inventory misstatements.

| | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|
| Reported net income | $30,000 | $40,000 | $35,000 | $45,000 |
| Inventory overstatement, end of year | | 3,000 | | 2,000 |
| Inventory understatement, end of year | 4,000 | | 1,000 | |

*Required:* Using the data provided, calculate the correct net income for each year.

## PROBLEM 7-10 THE EFFECT OF INVENTORY ERRORS

You have been hired as the accountant for Tracy Company, which uses the periodic inventory method. In reviewing the firm s records, you have noted what you think are several accounting errors made during the current year, 2003. These potential mistakes are listed as follows:

a. A $43,000 purchase of merchandise was properly recorded in the purchases account, but the related accounts payable account was credited for only $2,000.
b. A $3,500 shipment of merchandise received just before the end of the year was properly recorded in the purchases account but was not physically counted in the inventory and, hence, was excluded from the ending inventory balance.
c. A $6,700 purchase of merchandise was erroneously recorded as a $7,600 purchase.
d. A $500 purchase of merchandise was not recorded either as a purchase or as an account payable.
e. During the year, $1,200 of defective merchandise was sent back to a supplier. The original purchase had been recorded, but the merchandise return entry was not recorded.
f. During the physical inventory count, inventory that cost $400 was counted twice.

*Required:*

1. If the previous accountant had tentatively computed the 2003 gross margin to be $10,000, what would be the correct gross margin for the year?
2. If these mistakes are not corrected, by how much will the 2004 net income be in error?

## PROBLEM 7-11 UNIFYING CONCEPTS: INVENTORY COST FLOW ALTERNATIVES

Stan s Wholesale buys canned tomatoes from canneries and sells them to retail markets. During August 2003, Stan s inventory records showed the following:

| | | Cases | Price |
|---|---|---|---|
| August 1 | Beginning inventory | 4,100 | $10.50 |
| 4 | Purchase | 1,500 | 11.00 |
| 9 | Sale | 950 | 19.95 |
| 13 | Purchase | 1,000 | 11.00 |
| 19 | Sale | 1,450 | 19.95 |
| 26 | Purchase | 1,700 | 11.50 |
| 30 | Sale | 1,900 | 19.95 |

Even though it requires more computational effort, Stan s uses the perpetual inventory method because management feels that the advantage of always having current knowledge of inventory levels justifies the extra cost.

*Required:* Calculate the cost of goods sold and ending inventory using the following cost flow alternatives. (Calculate unit costs to the nearest cent.)

1. FIFO
2. LIFO
3. Average cost

## PROBLEM 7-12 PERPETUAL INVENTORY COST FLOW ALTERNATIVES

Pump-It, Inc., sells weight-lifting equipment. The sales and inventory records of the company for January through March 2003 were as follows:

| | Weight Sets | Unit Cost | Total Cost |
|---|---|---|---|
| Beginning inventory, Jan. 1 | 460 | $30 | $13,800 |
| Purchase, Jan. 16 | 110 | 32 | 3,520 |
| Sale, Jan. 25 ($45 per set) | 216 | | |
| Purchase, Feb. 16 | 105 | 36 | 3,780 |
| Sale, Feb. 27 ($40 per set) | 307 | | |
| Purchase, March 10 | 150 | 28 | 4,200 |
| Sale, March 30 ($50 per set) | 190 | | |

*Required:*

1. Determine the amounts for ending inventory, cost of goods sold, and gross margin under the following costing alternatives. Use the perpetual inventory method. Round amounts to the nearest dollar.
   a. FIFO
   b. LIFO
   c. Average cost (calculate unit costs to the nearest cent)
2. **Interpretive Question:** Which alternative results in the highest gross margin? Why?

## PROBLEM 7-13 UNIFYING CONCEPTS: INVENTORY ESTIMATION METHOD

Jamestown Clothing Store has the following information available:

| | Cost | Selling Price | Other |
|---|---|---|---|
| Purchases during January 2003 | $120,000 | $170,000 | |
| Inventory balance January 1, 2003 | 48,000 | 62,000 | |
| Sales during January | | 180,000 | |
| Average gross margin rate for the last three years | | | 25% |

*Required:*

1. On the basis of this information, estimate the cost of inventory on hand at January 31, 2003, using the gross margin method. Round to the nearest whole percent.
2. How accurate do you think this method is?

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***Analyzing 7-1 (Microsoft)***

Using **MICROSOFT** s 1999 annual report in Appendix A, answer the following questions:

1. What type of items compose Microsoft s inventory?
2. Review Microsoft s balance sheet to determine the amount of inventory on hand on June 30, 1999. Does this mean Microsoft has absolutely no inventory? Where would Microsoft s inventory probably be disclosed?
3. Review the management s discussion note disclosure on operating expenses, specifically the discussion relating to cost of revenue. Does this discussion help explain what might make up some of Microsoft s inventory?

***Analyzing 7-2 (Archer Daniels Midland)***

Selected financial statement information relating to inventories for **ARCHER DANIELS MIDLAND (ADM)** is given below:

| | 1999 | 1998 |
|---|---|---|
| Cost of goods sold | $13,051,306 | $14,727,670 |
| Inventory FIFO valuation | 2,734,054 | 2,608,167 |
| Inventory LIFO valuation | 2,732,694 | 2,562,650 |

ADM accounts for approximately 75% of its inventories using the FIFO method, but accounts for some of its inventories using the LIFO method. Thus, the differences reflected in the above table represent those inventories accounted for using the two methods.

1. Compute ADM s number of days sales in inventory for 1999 using (a) the FIFO valuation for inventory and (b) the LIFO valuation for inventory. Are the differences significant enough to concern you?
2. Suppose that ADM purchases its inventory with the terms net 30 days. That is, ADM s creditors expect payment in 30 days. Is ADM going to have a cash flow problem?

***Analyzing 7-3 (La-Z-Boy and McDonald s)***

The following information is taken from the 1998 financial statements of **LA-Z-BOY, INC.**, maker of recliners and other home furnishings, and the 1999 financial statements of **MCDONALD S**, maker of the Big Mac[fi] and other fast foods.

| | La-Z-Boy | McDonald s |
|---|---|---|
| Cost of goods sold | $825.3* | $3,204.6 |
| Beginning inventory | 78.8 | 77.3 |
| Ending inventory | 91.9 | 82.7 |

*Amounts in millions.

1. Before you do any computations, forecast which of the two companies will have a lower number of days sales in inventory.
2. Compute each company s number of days sales in inventory. Was your forecast in (1) correct?
3. How can these two very successful companies have number of days sales in inventory that are so different?

## INTERNATIONAL CASE

***Why No LIFO?***

The LIFO method of accounting for inventory is primarily a U.S. invention. Many countries around the world will not allow LIFO to be used, and other countries discourage its use. For example, the International Accounting Standards Committee calls LIFO an undesirable but allowable method. In the United Kingdom, LIFO is allowable under corporate law but is unacceptable under professional accounting standards.

Why do you think other countries have such an unfavorable opinion of LIFO? Think about these issues: In periods of rising prices, does the amount shown on the balance sheet relating to inventory reflect current cost? If a company s inventory on the balance sheet reflected costs from years past, what would happen to the income statement if those inventory costs were suddenly moved to Cost of Goods Sold? Would the result reflect a firm s actual performance?

## ETHICS CASE

***Shipping Bricks***

In 1989 the U.S. Department of Justice Criminal Division discovered a massive inventory fraud that was being conducted by managers at **MINISCRIBE CORPORATION**. MiniScribe manufactured and sold computer disk drives. The fraud included placing bricks in disk drive boxes, shipping those boxes to customers, and recording a sale when the box was shipped. MiniScribe managers also knowingly shipped defective drives and recorded sales even though they knew those drives would be returned.

What would be the effect on the income statement and the balance sheet of shipping bricks and recording those shipments as sales? (HINT: Think about the journal entry that would have been made by MiniScribe accountants when a box of bricks was shipped to customers who were expecting disk drives.)

Would company officials be able to fool financial statement users for a long time using this type of deception? What could financial statement users have looked for to detect this type of fraud?

## WRITING ASSIGNMENT

### *Estimating Inventory*

Jon Johnson, an accountant with a local CPA firm, has just completed an inventory count for Mom & Pop s Groceries. Mom and Pop provide audited financial statements to their bank annually, and part of that audit requires an inventory count. Don Squire, a partner with the CPA firm, has also conducted an analysis to estimate this period s ending inventory. Don used the gross margin method, a method whereby the prior period s gross margin percentage is used to infer this period s percentage, to estimate ending inventory. In addition, the store is equipped with cash registers that scan each product as it is sold and, as a result, provide a perpetual inventory record.

These three inventory analysis methods have resulted in three very different answers, which are summarized in the following table:

| Method | Inventory Value |
|---|---|
| Inventory count | $ 98,500 |
| Gross margin analysis | 119,750 |
| Point-of-sale scanners | 111,500 |

In evaluating the results, Jon and Don are curious as to why the three methods result in such large differences. Since the inventory count reports actual inventory on hand, they begin to wonder if Mom and Pop have an inventory theft problem. Write a short memo explaining why the other two methods, gross margin analysis and point-of-sale scanners, can result in significantly different answers without there being a theft problem.

## THE DEBATE

### *One Method for All*

As you know, we have periodic and perpetual inventory methods, along with LIFO, FIFO, and average cost variations of each. How can we compare the financial statements of different companies if they are using different inventory methods? This debate focuses on the question of whether financial statement users would be better able to compare information if all companies used the same inventory method.

Divide your group into two teams and prepare a five-minute presentation defending the following positions:

One team represents What s Good for One Is Good for All. To make financial statements comparable, all companies should be required to use the same inventory method. Which one? Rather than fight over the pros and cons of LIFO and FIFO, a compromise position would be to require all firms to use perpetual average cost. With the availability of computers, the computational problems associated with this method no longer exist. The resulting information would then allow more comparability across firms.

The other team represents It s OK to Be Different. Firms are different. One size does not fit all, and one inventory method is not appropriate for

all firms. Firms should be allowed to use the inventory method(s) that are best suited for their unique operations.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignments given in earlier chapters. If you completed those spreadsheets, you have a head start on this one. If needed, review the spreadsheet assignment for Chapter 4 to refresh your memory on how to construct forecasted financial statements.

1. Handyman wishes to prepare a forecasted balance sheet and income statement for 2004. Use the original financial statement numbers for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2] as the basis for the forecast, along with the following additional information:
   a. Sales in 2004 are expected to increase by 40% over 2003 sales of $700.
   b. Cash will increase at the same rate as sales.
   c. The forecasted amount of accounts receivable in 2004 is determined using the forecasted value for the average collection period. For simplicity, do the computations using the end-of-period accounts receivable balance instead of the average balance. The average collection period for 2004 is expected to be 14.08 days.
   d. In 2004, Handyman expects to acquire new property, plant, and equipment costing $80.
   e. The $160 in operating expenses reported in 2003 breaks down as follows: $5 depreciation expense, $155 other operating expenses.
   f. No new long-term debt will be acquired in 2004.
   g. No cash dividends will be paid in 2004.
   h. New short-term loans payable will be acquired in an amount sufficient to make Handyman s current ratio in 2004 exactly equal to 2.0.

   Note: These statements were constructed as part of the spreadsheet assignment in Chapter 6; you can use that spreadsheet as a starting point if you have completed that assignment. *Clearly state any additional assumptions that you make.*

   For this exercise, add the following additional assumptions:
   i. The forecasted amount of inventory in 2004 is determined using the forecasted value for the number of days  sales in inventory (computed using the end-of-period inventory balance). The number of days  sales in inventory for 2004 is expected to be 107.6 days.
   ii. The forecasted amount of accounts payable in 2004 is determined using the forecasted value for the number of days  purchases in accounts payable (computed using the end-of-period accounts payable balance). The number of days  purchases in accounts payable for 2004 is expected to be 48.34 days.
2. Repeat (1), with the following changes in assumptions:
   a. Number of days  sales in inventory is expected to be 66.2 days.
   b. Number of days  sales in inventory is expected to be 150.0 days.
3. Comment on the differences in the forecasted values of cash from operating activities in 2004 under each of the following assumptions about the number of days  sales in inventory: 107.6 days, 66.2 days, and 150.0 days.
4. Is there any impact on the forecasted level of accounts payable when the number of days  sales in inventory is changed? Why or why not?
5. What happens to the forecasted level of short-term loans payable when the number of days  sales in inventory is reduced to 66.2 days? Explain.

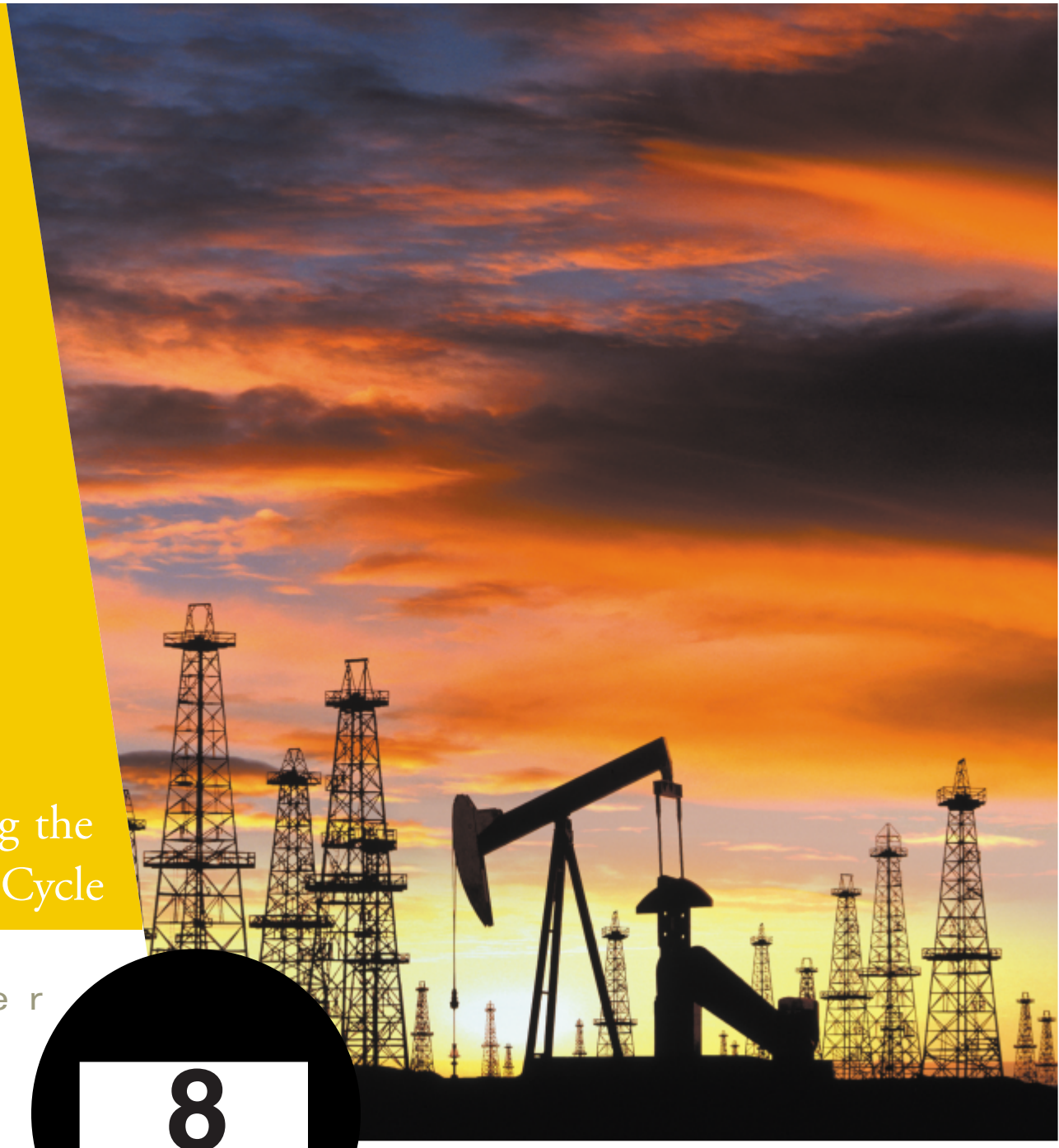
## INTERNET SEARCH

***Sears***

We began this chapter with a discussion of **SEARS ROEBUCK & COMPANY**. Access its Web site at **http://www.sears.com**. Sometimes Web addresses change, so if this address doesn t work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link.

Once you have located the company s Web site, answer the following questions:

1. Locate the portion of the Web site dedicated to Sears history. Can you find information about Sears beginnings (similar to the narrative at the beginning of this chapter)? In what year did Sears issue its first large general catalog?
2. Locate Sears balance sheet. Have inventories, as a percentage of total assets, increased or decreased over the time period presented?
3. Compute Sears number of days sales in inventory. Is it increasing or decreasing over the time period presented?
4. Locate Sears note information relating to inventory. Which inventory methods does Sears employ?



# Completing the Operating Cycle

chapter

8

## learning objectives

After studying this chapter, you should be able to:

1. Account for the various components of employee compensation expense.
2. Compute income tax expense, including appropriate consideration of deferred tax items.
3. Distinguish between contingent items that should be recognized in the financial statements and those that should be merely disclosed in the financial statement notes.
4. Understand when an expenditure should be recorded as an asset and when it should be recorded as an expense.
5. Prepare an income statement summarizing operating activities as well as other revenues and expenses, extraordinary items, and earnings per share.

Before 1850, the primary use for petroleum was as a medicine. Known variously as Seneca oil, American oil, and rock oil, a mixture of water and petroleum was reportedly good for rheumatism, chronic cough, ague, toothache, corns, neuralgia, urinary disorders, indigestion, and liver ailments. The oil was collected by wringing out woolen blankets that had been thrown onto the surfaces of ponds that had been fouled by seeping oil. Oil was also a nuisance by-product of drilling wells in search of underground salt brine deposits.

Gradually, additional properties of oil were discovered. It was found that oil could serve as a lubricant for the machinery that was becoming more common as the Industrial Revolution progressed. In addition, distilled oil was found to burn well in the household lamps that had traditionally burned vegetable oil or sperm whale oil. As the demand for petroleum increased, the search for oil began in earnest. A group of investors hired Edwin L. Drake to drill for oil in northwestern Pennsylvania, where oil had long been found in springs and wells. In late August 1859, Drake struck oil at a depth of 69½ feet, creating an oil well that yielded 25 barrels per day. This discovery touched off an oil rush in western Pennsylvania, and the opportunities to get rich were soon fanned by the increased demand for lubricating oil associated with the North's war production during the Civil War.

**f y i**

The oil boom did not hit Texas until 1901 when a well on Spindletop Hill, south of Beaumont, Texas, began to gush 100,000 barrels of oil a day.

In those early days, Cleveland, Ohio, was the center of oil refining, and one of the earliest players in the refining business was John D. Rockefeller. Rockefeller had started his business career in Cleveland as a bookkeeper(!) in 1855. By saving his earnings, he acquired some investment capital, and, with a partner, he put up $4,000 to begin a refinery in Cleveland in 1862. Rockefeller's aggressive business tactics aroused controversy almost from the beginning. In particular, Rockefeller was accused of negotiating favorable freight rates with the railroads hauling his oil whereas his competitors were required to pay the stated rates. In 1872, Rockefeller was able to persuade a large number of his Cleveland refining competitors to sell out to him by convincing them that he had arranged such a favorable deal with the railroads that competing head-to-head with him would be impossible.

Rockefeller was eager to expand the business interests of his **STANDARD OIL COMPANY OF OHIO** into other areas, but the incorporation laws in existence at the time made it difficult for corporations to merge. Therefore, Rockefeller created a "trust," which was basically a corporation of corporations. The stockholders of each corporation transferred their shares to the care of the nine trustees of the **STANDARD OIL TRUST**; in exchange, the stockholders received trust certificates. Thereafter, the nine trustees ran the businesses and the stockholders received the dividends. When the Ohio Supreme Court ruled this trust illegal in 1892, lawyers for Standard Oil sought another business structure that would preserve the essence of the trust. They found the answer in the incorporation laws of the state of New Jersey, which allowed the formation of a holding company that would own shares of various corporations, duplicating the function of the central trust. In 1899, legal ownership of the companies controlled by Rockefeller was transferred to a holding company called the **STANDARD OIL COMPANY OF NEW JERSEY**.

**f y i**

John D. Rockefeller used some of his Standard Oil profits to found the University of Chicago in 1891.

setting the stage

In the early 1890s, the spirit of reform spread over the United States. Many people felt that Big Business was too powerful and must be reined in by the federal government. President Theodore Roosevelt set the tone by proclaiming himself a "trust-buster," and his administration vigorously pursued an antitrust case against Standard Oil. In 1911, the U.S. Supreme Court mandated the breakup of the Standard Oil Company into 34 smaller companies. Many of those companies are still very well known, as evidenced by the partial list contained in Exhibit 8-1.

**f y i**

The federal antitrust case against **MICROSOFT** has been compared to the Standard Oil case of 1911, with Bill Gates playing the role of a modern-day Rockefeller.

The largest piece of the dismembered Standard Oil Trust was the Standard Oil Company of New Jersey, which changed its named to **EXXON** in 1972. Exxon now operates in over 100 countries, exploring for oil, producing petrochemical products, and transporting oil and natural gas. In

**exhibit 8-1** Companies Descended from the Original Standard Oil

| | Total Revenue for 1999 (in millions) |
|---|---|
| Amoco (subsidiary of BP Amoco) | $ 33,000* |
| Ashland | 20,293 |
| Atlantic Richfield (merger with BP Amoco pending) | 13,055 |
| Chevron | 36,586 |
| Conoco | 27,309 |
| ExxonMobil | 185,527 |
| Pennzoil–Quaker State | 2,989 |
| Total | $318,759 |

By contrast, the #1 company in the Fortune 500 revenue listing in 1999 was General Motors with revenues of $189,058 million.
*Estimated
**Source:** *The Wall Street Journal*, December 2, 1998, p. B1, updated.

many places, the company is known as **ESSO**, representing the initials "SO" for Standard Oil. To illustrate the size of Exxon's operations, the company had worldwide proved oil reserves of 11.3 billion barrels and proved natural gas reserves of 56.8 trillion cubic feet as of December 31, 1999. On December 1, 1998, Exxon (the former Standard Oil Company of New Jersey) announced an agreement to merge with **MOBIL** (the former **STANDARD OIL COMPANY OF NEW YORK**), thus reuniting these two pieces of the vast empire built by John D. Rockefeller. The formal joining of the two companies was completed on November 30, 1999, creating **EXXONMOBIL**.[1]

*In Chapters 6 and 7, we discussed the accounting for sales and the cost of inventory sold. For firms that sell a product, the cost of the inventory sold typically represents the largest expense. For example, cost of goods sold was the largest expense category for **EXXONMOBIL** in 1999, totaling 42% of sales. For **WAL-MART**, cost of goods sold was 79% of sales in 1999. Although cost of goods sold represents a significant expense for those companies such as ExxonMobil and Wal-Mart that manufacture and/or sell a product, it is certainly not the only expense. And for those companies that sell a service, other expenses such as employee compensation or advertising can be far more significant than cost of goods sold.*

*In this chapter, we discuss a number of these other significant operating issues. We will begin with a discussion of two significant operating expenses that are incurred by almost every firm: employee compensation and income taxes. We also discuss the accounting for the costs associated with contingencies, which are items that are not fully resolved at the time the financial statements are prepared. Two common examples of contingencies are lawsuits and environmental cleanup obligations. Also in this chapter we discuss how one determines whether a cost should be recorded as an asset (capitalized) or recorded as an expense. The expense versus capitalize issue has arisen many*

1 Information for this description was obtained from Daniel J. Boorstin, *The Americans: The Democratic Experience* (New York: Random House, 1973) and Ida M. Tarbell, *The History of the Standard Oil Company* (New York: MacMillan Company, 1904).

*times over the years as accountants have wrestled with how to account for advertising costs, research costs, and others.*

*The financial statement items covered in this chapter are illustrated in Exhibit 8-2. Various operating items affecting the income statement are covered in the chapter. The two most significant are employee compensation and income taxes. The balance sheet items discussed are pension liabilities, deferred income tax liabilities, and contingent liabilities. The accounting aspects of these balance sheet items are intriguing in that both the pension and deferred tax items are sometimes reported as assets rather than liabilities. In addition, contingent liabilities are frequently not reported on the balance sheet at all. The details of all these topics, and more, are discussed in this chapter.*

## 1 EMPLOYEE COMPENSATION

Account for the various components of employee compensation expense.

Often, one of the largest operating expenses of a business is the salaries and wages of its employees. But the cost of employees is not simply the expense associated with the current period's wages. As the following time line illustrates, issues associated with employee compensation can extend long after the employee has retired.

**Employee Compensation Event Line**

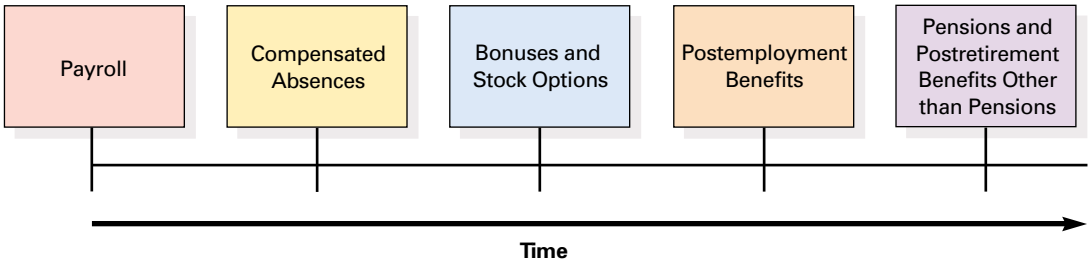
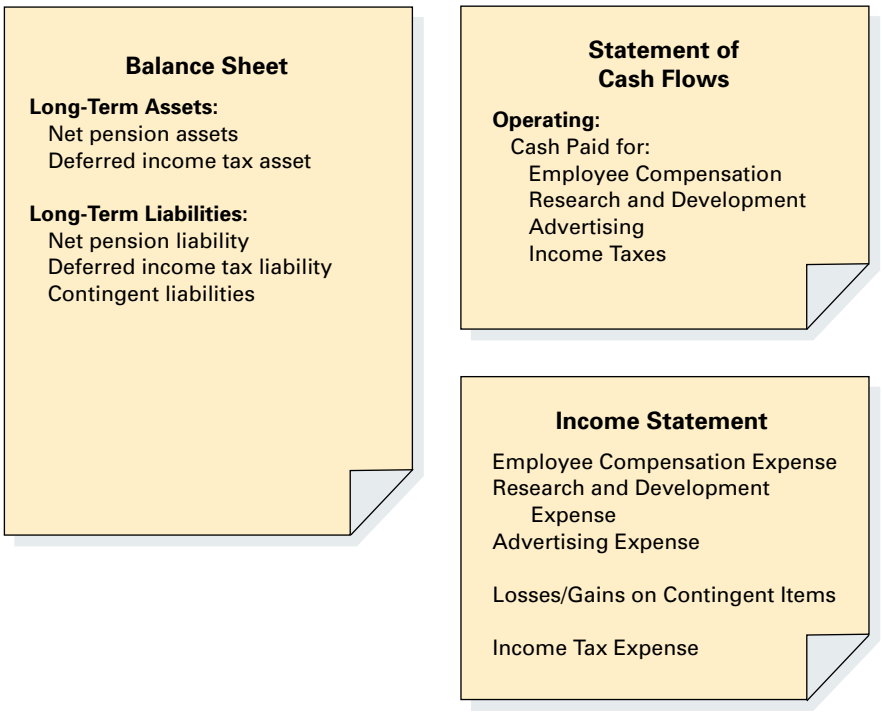



exhibit 8-2 Financial Statement Items Covered in This Chapter



Payroll relates to the salaries and wages earned by employees for work done in the current period. Wages are paid anywhere from weekly to monthly, depending on the company. Compensated absences exist when an employer agrees to pay workers for sick days or vacation days. These obligations must be estimated and accrued in the period that the employee earns those days off. Many employees are paid bonuses based on some measure of performance (such as income or sales volume). Those bonuses are often paid quarterly or annually. One way to provide bonuses to employees is through the granting of stock options. In some cases, employees may earn what are termed "postemployment benefits," which kick in if an employee is laid off or terminated. Finally, firms offer benefits to their employees upon retirement. We will discuss each of these items in further detail in the sections that follow.

## Payroll

In its simplest form, accounting for payroll involves debiting Salaries Expense and crediting Salaries Payable when employees work and then debiting Salaries Payable and crediting Cash when wages are paid. However, accounting for salaries and related payroll taxes is never quite that simple and can, in fact, be quite complex. This is primarily because every business is legally required to withhold certain taxes from employees' salaries and wages.

**Social Security (FICA) taxes** Federal Insurance Distributions Act taxes imposed on the employee and the employer; used mainly to provide retirement benefits.

Very few people receive their full salary as take-home pay. For example, an employee who earns $30,000 a year probably takes home between $20,000 and $25,000. The remainder is withheld by the employer to pay the employee's federal and state income taxes, **Social Security (FICA) taxes**,[2] and any voluntary or contractual withholdings that the employee has authorized (such as union dues, medical insurance premiums, and charitable contributions). Thus, the accounting entry to record the expense for an employee's monthly salary (computed as 1/12 of $30,000) might be:

| | | |
|---|---|---|
| Salaries Expense | 2,500 | |
| FICA Taxes Payable, Employees | | 191 |
| Federal Withholding Taxes Payable | | 400 |
| State Withholding Taxes Payable | | 200 |
| Salaries Payable | | 1,709 |
| *To record Mary Perrico's salary for July.* | | |

All the credit amounts (which are arbitrary in this example) are liabilities that must be paid by the employer to the federal and state governments and to the employee. It should be noted that these withholdings do not represent an additional expense to the employer because the employee actually pays them. The employer merely serves as an agent for the governments for collecting and paying these withheld amounts.

In addition to remitting employees' income and FICA taxes, companies must also pay certain payroll-related taxes, such as the employer's portion of the FICA tax (an amount equal to the employee's portion) and state and federal unemployment taxes. The payroll-related taxes paid by employers are expenses to the company and are included in operating expenses on the income statement. An entry to record the company's share of payroll taxes relating to Mary Perrico's employment (again using arbitrary amounts) would be:

| | | |
|---|---|---|
| Payroll Tax Expense | 279 | |
| FICA Taxes Payable, Employer | | 191 |
| Federal Unemployment Taxes Payable | | 18 |
| State Unemployment Taxes Payable | | 70 |
| *To record employer payroll tax liabilities associated with Mary Perrico's salary for July.* | | |

2 Congress has split FICA taxes into two parts—Social Security and Medicare. For the purposes of this chapter, we will combine the two.

The different liabilities recorded in the preceding two entries for payroll would be eliminated as payments are made. The entries to account for the payments are:

| | | |
|---|---|---|
| FICA Taxes Payable | 382 | |
| Federal Withholding Taxes Payable | 400 | |
| Federal Unemployment Taxes Payable | 18 | |
| Cash | | 800 |
| *Paid July withholdings and payroll taxes to federal government.* | | |
| State Withholding Taxes Payable | 200 | |
| State Unemployment Taxes Payable | 70 | |
| Cash | | 270 |
| *Paid July withholdings and payroll taxes to state government.* | | |
| Salaries Payable | 1,709 | |
| Cash | | 1,709 |
| *Paid July salary to Mary Perrico.* | | |

As these entries show, three checks are written for payroll-related expenses: one to the federal government, one to the state, and one to the employee.

One further point about salaries and wages needs to be made. The period of time covered by the payroll may not coincide with the last day of the year for financial reporting. Thus, if the reporting year ends on Wednesday, December 31, and the salaries and wages for that week will be paid Monday, January 5 of the following year, then the company must show the salaries and wages earned from Monday through Wednesday (December 29, 30, and 31) as a liability on the December 31 balance sheet. To accomplish this, the company would record an end-of-year adjusting entry to record the salaries and wages earned for those three days.

## Compensated Absences

Suppose that you work for a business that provides each employee one day of sick leave for each full month of employment. When should that sick day (or compensated absence) be accounted for? When it is taken by the employee? When it is earned by the employee? And how much of an accrual should be associated with the compensated absences?

The matching principle requires that the expense associated with the compensated absence be accounted for in the period in which it is earned by the employee. Some of the conceptual issues associated with accounting for compensated absences are similar to those addressed in accounting for bad debts. In the case of bad debts, if we waited until we were sure a customer wasn't going to pay, then we could be certain about our bad debt expense. But we may not find out that we are not going to be paid until several periods later, and as a result, the bad debt expense would be reflected in the wrong accounting period. So instead of waiting until accounts are dishonored, we estimate the expense for each period. The same is true with compensated absences. Although we could wait until those sick days are taken and then know exactly what they will cost, it may be years before we know. Rather than wait, we estimate instead. For example, if you earn both $100 a day and one sick day per month, then it makes sense for your employer to recognize an expense (and accrue a liability) of $100 per month related to your sick pay. This would be done with the following journal entry:

| | | |
|---|---|---|
| Salaries Expense | 100 | |
| Sick Days Payable | | 100 |
| *To recognize accrued sick pay.* | | |

When you take that sick day (and let's not forget that the government will take its share of your sick pay also), the journal entry would be:

| | | |
|---|---|---|
| Sick Days Payable | 100 | |
| Various Taxes Payable | | 20 |
| Cash | | 80 |
| *To record payment of sick day net of FICA, federal, and state taxes.* | | |

Now suppose that you don't take your sick day until next year. Assume also that you received a $10 raise per day. This makes our estimate of $100 incorrect, so we will fix that estimate in the period in which you take the sick day. The journal entry in this instance would be:

| | | |
|---|---|---|
| Sick Days Payable | 100 | |
| Salaries Expense | 10 | |
| Various Taxes Payable | | 22 |
| Cash | | 88 |
| *To record payment of sick day net of FICA, federal, and state taxes.* | | |

The same procedures would apply when accounting for accrued vacation pay or other types of compensated absences.

## Bonuses

**bonus** Additional compensation, beyond the regular compensation, that is paid to employees if certain objectives are achieved.

Many companies offer employee **bonus** plans that allow employees to receive additional compensation should certain objectives be achieved. These bonus plans sometimes apply to all employees although more often they are restricted to members of top management. In many instances, the terms of the bonus plan are defined using financial statement numbers. For example, in its 1999 proxy statement filed with the Securities and Exchange Commission (SEC), **EXXONMOBIL** disclosed that it has a management bonus plan targeted at 1,000 of its managers. The plan grants a certain number of award units to the managers; a manager is entitled to receive cash equal to the company's reported earnings per share for each award unit held. For example, ExxonMobil's chief executive officer (CEO), Lee R. Raymond, received 301,140 of these award units in 1999. With ExxonMobil's earnings per share in 1999 being $2.25, these award units added $677,565 (301,140 award units × $2.25) to Raymond's base salary of $2,110,417.

The purpose of an earnings-based bonus plan is to encourage managers to work harder and smarter to improve the performance of the company. However, such a plan also increases the incentive of managers to manipulate reported earnings. In fact, one of the factors looked at by auditors in evaluating the risk of financial statement fraud in a company is whether the company has an earnings-based management bonus plan.

## Stock Options

**employee stock options** Rights given to employees to purchase shares of stock of a company at a predetermined price.

**Employee stock options** have become an increasingly popular way to compensate top executives. Under a stock option plan, managers are given the option of purchasing shares of the company's stock in the future at a price that is specified today. For example, in 1999, Lee Raymond, CEO of ExxonMobil, was granted 425,000 options, each allowing him to buy one share of ExxonMobil stock in the future for $83.56, which was the market value of ExxonMobil shares on the date the options were granted. Raymond will make money from these options if he is able to improve the performance of ExxonMobil and increase its stock price. If, for example, the company's stock price were to increase to $100.00 per share, these 425,000 options, allowing Raymond to buy ExxonMobil shares at the fixed price of $83.56, would be worth $6,987,000 [425,000 × ($100.00 − $83.56)]. Stock options are an attractive way to compensate top management because the options pay off only if the managers are able to increase the value of the company, which is exactly what the owners of the company (the stockholders) desire.

There has been significant debate in the United States about how to compute the compensation expense associated with employee stock options. The debate centers around the issue

of what the value of an option is. Two methods for valuing employee options for accounting purposes are described below.

**INTRINSIC VALUE METHOD** The "intrinsic value" of an option is the value it has if it must be exercised immediately. For example, if a company's stock price is $50 and it issues an option allowing an employee to buy a share of stock for $50, the option has no "intrinsic value" because the employee would be just as well off purchasing the company's stock in the market for $50, just as anyone not holding an option could do.

**FAIR VALUE METHOD** The "fair value" of an option stems from the possibility that the employee may want to exercise the option in the future if the company's stock price goes up. For example, even if an option exercise price of $50 is equal to the stock price on the date the option is granted to an employee, there is a chance that the stock price may increase during the life of the option. This means that an option with no "intrinsic value" can still have substantial economic value because the employee holding the option may be able to buy the stock at less than its market value some time in the future. Exact computation of the fair value of options involves complex formulas derived using stochastic calculus, but commercially available software packages make option valuation no more difficult than using a spreadsheet.

The fair value method, with its theoretically correct emphasis on estimating the actual value of the options granted to employees, is backed by the FASB. Nevertheless, the vast majority of U.S. corporations opposed the FASB's attempt in 1994 to require recognition of a stock option compensation expense. The reason for this opposition was simple: recognition of a stock option compensation expense would reduce reported earnings. The surprising vigor of the opposition to the fair value method caused the FASB to reluctantly approve the following accounting treatment:

- Companies are allowed to use the intrinsic value method. For most stock option plans, this means that no expense is recognized.
- Companies are encouraged, but not required, to adopt the fair value method for employee stock options. The fair value method results in compensation expense being recognized for almost all stock option plans.
- Those companies choosing to use the intrinsic value method must disclose what their net income would have been if they had used the fair value method.

Like most U.S. companies, ExxonMobil uses the intrinsic value method. In 1999, ExxonMobil granted over 22 million employee stock options, all with intrinsic values of $0 as of the grant date. Thus, ExxonMobil reported no compensation expense in relation to these 22 million options. In the notes to its financial statements, ExxonMobil discloses that these 22 million options had a total fair value of $149 million. This amount would have been recognized as compensation expense (spread over the number of years employees are required to stay with the company to earn the options) if ExxonMobil had used the fair value method.

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**MICROSOFT** reports that if it had used the fair value method instead of the intrinsic value method in 1999, its reported compensation expense would have been increased by $1.1 billion.

## Postemployment Benefits

**postemployment benefits**
Benefits paid to employees who have been laid off or terminated.

Postemployment benefits are perhaps the least common of the topics covered in this section on employee compensation. **Postemployment benefits** are those benefits that are incurred after an employee has ceased to work for an employer but before that employee retires. A common example is a company-provided severance package for employees who have been laid off. This severance package might include salary for a certain time period, retraining costs, education costs, and the like. Although the company may not know the exact postemployment cost, accounting standards require that the amount be estimated and accrued in the period in which the decision is made to cut back the labor force. For example, suppose a company decides to close a segment of its operations, thereby laying off a certain percentage of its labor force. The company must estimate the costs associated with the benefits offered to those laid-off employees and would record the following journal entry:

## business environment essay

**What Goes into Pensions?** A pension is an agreement between an employer and the employees that the employees will receive a certain sum of money upon retirement. That money may be paid in a single sum or over several years. In addition, employers often offer other postretirement benefits such as medical and life insurance. Consider how difficult it can be to account for these items.

Let's assume that you are 25 years old when you start working for your current employer. Your employer's pension plan states that upon retirement you will receive medical and life insurance benefits in addition to a monthly pension check. The pension will be a percentage, commonly 2%, of your average annual salary over the last five years of your employment multiplied by the number of years of employment. What factors need to be considered in determining the employer's future liability?

As you can imagine, estimating these various factors involves some enormous assumptions. Plus, once the estimates have been made, the fact that those expenditures will not be made for 40 years (assuming you retire when you turn 65) must be factored in.

As if that isn't enough, the employer must do this computation for every employee. In the case of large companies, such as EXXONMOBIL with 106,000 employees, the computations are staggering. Fortunately, businesses have help in the form of actuaries. Actuaries make their living predicting the future. They

**pension** An agreement between an employer and employees that provides for benefits upon retirement.

**defined contribution plan** A pension plan under which the employer contributes a defined amount to the pension fund; after retirement, the employees receive the amount contributed plus whatever it has earned.

**defined benefit plan** A pension plan under which the employer defines the amount that retiring employees will receive and contributes enough to the pension fund to pay that amount.

| | | |
|---|---|---|
| Salaries Expense | xxx | |
| Benefits Payable | | xxx |
| *To record postemployment benefits for laid-off employees.* | | |

When the benefits are paid, a journal entry would be made to reduce the payable and to record the cash outflow.

## Pensions

A **pension** is cash compensation received by an employee after that employee has retired. Two primary types of pension plans exist. A **defined contribution plan** requires the company to place a certain amount of money into a pension fund each year on behalf of the employees. Then, after the employees retire, they receive the money contributed to the pension fund plus the earnings on those contributions. With a **defined benefit plan**, on the other hand, the company promises the employees a certain monthly cash amount after they retire, based on factors such as number of years worked by the employee, employee's highest salary, and so forth.

The accounting for a defined contribution plan is quite simple—a company merely reports pension expense equal to the amount of cash it is required to contribute to its employees' pension fund during the year. Normally, no balance sheet liability is reported in connection with a defined contribution plan because, once the company has made the required contribution to the pension fund, it has no remaining obligation to the employees.

Who bears the risks associated with a defined contribution plan—the employer or the employee? Which party bears the risks associated with a defined benefit plan?

The accounting issues associated with defined benefit plans are much more complex because the ultimate amount that a company will have to pay into its employees' pension fund depends on how long the employees work before retiring, what their highest salaries are, how long the employees live after they retire, and how well the investments in the pension fund perform. The accounting concept underlying this complexity, however, is still the same basic idea of matching: the income statement this year should contain all expenses related to generating revenue this year, whether those expenses are paid in cash this year (like cash wages) or are not expected to be paid for many years (like pension benefits).

estimate birth and death rates, trends in inflation, health-care costs, salaries, and other relevant information. There are about 14,000 actuaries in the United States, compared to over 1 million accountants.

So, if you start thinking that accounting is difficult and you become uncomfortable with all the assumptions and estimates, remember that it could be worse: you could be studying to be an actuary!

| Postretirement Benefit | Factors to Consider |
|---|---|
| Medical insurance | What will health-care costs be in the future? |
| | How long will you live to enjoy those health insurance benefits? |
| | (The longer you live, the greater the cost.) |
| Life insurance | What will insurance premiums be for the remainder of your employment? |
| Pension check | How long will you work? |
| | What will your average annual salary be in your last five years of employment? |
| | How long will you or your spouse live after you retire? |

**PENSION-RELATED ITEMS IN THE FINANCIAL STATEMENTS** Each of the major balance sheet and income statement items related to pension accounting is briefly introduced below.

- *Pension fund.* When a company has a defined benefit pension plan, it is required by U.S. federal law to establish a separate pension fund to ensure that employees receive the defined benefits promised under the plan. The pension fund is basically a large investment fund of stocks and bonds. The company still owns these pension fund assets, but it cannot use them for any purpose except to pay pension benefits to employees.
- *Pension obligation.* The promise to make defined benefit pension payments to employees represents a liability to the company making the promise. The amount of this liability is quite difficult to estimate because it depends on future salary increases, employee turnover, employee life span, and so forth. The estimation of the liability is done by professionals called actuaries. These are the same individuals who provide the computations that life insurance companies use in setting premiums.
- *Net pension asset or liability.* One possible way to present the pension information on a balance sheet is to list the pension plan assets among the long-term assets and the pension liability as a long-term liability. However, the accounting standards stipulate that these two items be offset against one another and a single net amount be shown as either a net pension asset or a net pension liability.
- *Pension-related interest cost.* The estimated pension obligation represents an amount owed by a company to its employees. Accordingly, a pension-related interest cost is recognized each year; the amount of this interest cost is the increase in the pension obligation resulting from interest on the unpaid pension obligation.
- *Service cost.* The amount of a company's pension obligation increases each year as employees work and earn more pension benefits. This increase in the pension obligation is an expense associated with work done during the year and is called the pension service cost.
- *Return on pension fund assets.* The cost of a company's pension plan is partially offset by the return that the company earns on the assets in its pension fund.
- *Pension expense.* Just as pension liabilities and assets are offset against one another to arrive at a single net liability or asset to be reported on the balance sheet, the three components of pension expense (interest cost, service cost, and return on pension fund assets) are netted against one another to yield a single number that is reported on the income statement.

**ILLUSTRATION FROM EXXONMOBIL'S FINANCIAL STATEMENTS** In the notes to its 1999 financial statements, ExxonMobil discloses the following about its pension benefit obligation and its pension fund. All numbers are in millions of dollars.

| | U.S. Plans | Non-U.S. Plans | Total |
|---|---|---|---|
| Pension benefit obligation | $8,032 | $11,628 | $19,660 |
| Pension fund assets | 7,965 | 8,689 | 16,654 |
| Net pension liability | $ 67 | $ 2,939 | $ 3,006 |

Note that ExxonMobil has separated its pension plans into those covering employees in the United States and those covering employees located outside the United States. This is a useful separation because the laws governing the maintenance of pension plans vary from country to country; U.S. laws are generally viewed as giving more protection to the rights of the employees covered by pension plans than foreign laws do. Also note that ExxonMobil's pension plans are "underfunded," meaning that the market value of the assets in the pension funds is less than the estimated pension liability. ExxonMobil also provides the following information about its pension expense in 1999. Again, all of the numbers are in millions.

| | U.S. Plans | Non-U.S. Plans | Total |
|---|---|---|---|
| Service cost | $ 249 | $ 312 | $ 561 |
| Interest cost | 555 | 608 | 1,163 |
| Less: Expected return on fund assets | (601) | (599) | (1,200) |
| Other miscellaneous items | (35) | 217 | 182 |
| Net pension expense | $ 168 | $ 538 | $ 706 |

**caution**

The *expected*, not the actual, return on the pension fund assets is subtracted in computing pension expense. The accounting for the difference between expected and actual return involves deferring gains and losses, corridor amounts, and other complexities best left for an intermediate accounting course.

Note the significant reduction in reported pension expense caused by the expected return on pension fund assets; without the return on the pension fund, ExxonMobil's pension expense would be more than twice as high.

## Postretirement Benefits Other Than Pensions

In addition to pension benefits, employers often offer employees other benefits after their retirement. For example, ExxonMobil promises its employees that it will continue to cover them with health-care and life insurance plans after retirement. These types of plans are typically less formal than pension plans and often are not backed by assets accumulated in a separate fund. For example, ExxonMobil has only a $600 million separate fund set up to cover its estimated $2.6 billion obligation to cover the health-care needs of employees.

The accounting rules require companies to currently recognize the expense and long-term liability associated with the postretirement benefits that are earned in the current year, in keeping with the normal practice of matching expenses to the period in which they are initially incurred. The actual accounting is complex but similar to that required for pensions. The potential liabilities for these future payments can be quite significant for many firms. **GENERAL MOTORS** has the largest postretirement benefit plan in the United States, with a nonpension postretirement obligation totaling $44.683 billion as of December 31, 1999. Interestingly, General Motors clearly indicates that although it is reporting a liability for these postretirement benefits, it does not recognize these benefits as a legal obligation. In the notes to the 1999 financial statements, GM's management states:

> GM has disclosed in the consolidated financial statements certain amounts associated with estimated future postretirement benefits other than pensions and characterized such amounts as "accumulated postretirement benefit obligations," "liabilities," or "obligations." Notwithstanding the recording of such amounts and the use of these terms, GM

does not admit or otherwise acknowledge that such amounts or existing postretirement benefit plans of GM (other than pensions) represent legally enforceable liabilities of GM.

As illustrated in this section, compensation expense includes much more than just wages and salaries. Companies presumably have calculated that the value of the services provided by employees justifies the additional compensation cost beyond salaries and wages. The fact that employees earn benefits in one year that they do not receive until later, sometimes many years later, necessitates careful accounting to ensure that compensation expense is reported in the year in which it is earned.

**NORTHERN LIFE INSURANCE COMPANY**'s Web site, **http://www.northernlifetsa.com**, features a set of retirement and investment calculators to help in financial planning. How much money do you need to save per month in order to accumulate $1 million by the time you are 65?

## to summarize

Employee compensation is not limited to just the current period's payroll. The cost of employees also includes compensated absences, bonuses, stock options, postemployment benefits, pensions, and other postretirement benefits. Most companies account for employee stock options using the intrinsic value method, meaning that, typically, no compensation expense is recognized. A pension obligation is reported on the balance sheet as the difference between the obligation and the amount in an associated pension fund. Pension expense is the sum of interest cost and service cost, less the expected return on the pension fund assets.

**2**

Compute income tax expense, including appropriate consideration of deferred tax items.

## TAXES

In addition to the payroll taxes described in the previous section, companies are responsible for paying several other taxes to federal, state, and/or local governments, including sales taxes, property taxes, and income taxes. The accounting for these taxes is described next.

### Sales Taxes

Most states and some cities charge a sales tax on retail transactions. These taxes are paid by customers to the seller, who in turn forwards them to the state or city. Sales taxes collected from customers represent a current liability until remitted to the appropriate governmental agency. For example, assume that a sporting goods store in Denver prices a pair of skis at $200 and that the combination of state and city sales tax is 6.5%. When the store sells the skis, it collects $213 and records the transaction as follows:

| | | |
|---|---|---|
| Cash | 213 | |
| Sales Revenue | | 200 |
| Sales Tax Payable | | 13 |

*Sold a pair of skis for $200. Collected $213, including 6.5% sales tax.*

**sales tax payable** Money collected from customers for sales taxes that must be remitted to local governments and other taxing authorities.

The sales revenue is properly recorded at $200, and the $13 is recorded as **Sales Tax Payable**, a liability. Then, on a regular basis, a sales tax return is completed and filed with the state or city tax commission, and sales taxes collected are paid to those agencies. Note that the collection of the sales tax from customers creates a liability to the state but does not result in the recognition of revenue when collected or an expense when paid to the state. The company acts as an agent of the state in collecting the sales tax and recognizes a liability only until the collected amount is remitted to the state.

## Property Taxes

Property taxes are usually assessed by county or city governments on land, buildings, and other company assets. The period covered by the assessment of property taxes is often from July 1 of one year to June 30 of the next year. If a property taxpayer is on a calendar-year financial reporting basis (or on a fiscal-year basis ending on a day other than June 30), the property tax assessment year and the company's financial reporting year will not coincide. Therefore, when the company prepares its financial statements at calendar-year end, it must report a prepaid tax asset (if taxes are paid at the beginning of the tax year) or a property tax liability (if taxes are paid at the end of the tax year) for the taxes associated with the first portion of the assessment year. To illustrate, assume that Yokum Company pays its property taxes of $3,600 on June 30, 2002, for the period July 1, 2002, to June 30, 2003. If the company is on a calender-year basis and records the prepayment as an asset, then the adjusting entry at December 31, 2002, would be:

| | | |
|---|---|---|
| Property Tax Expense | 1,800 | |
| Prepaid Property Taxes | | 1,800 |
| *To record property tax expense for 6 months.* | | |

The prepaid property taxes account balance of $1,800 would be shown on Yokum's balance sheet at December 31, 2002, as a current asset. On June 30, 2003, property tax expense would be recognized for the period January 1, 2003, through June 30, 2003, with the following entry:

| | | |
|---|---|---|
| Property Tax Expense | 1,800 | |
| Prepaid Property Taxes | | 1,800 |
| *To record property tax expense for the property assessment period January 1–June 30, 2003.* | | |

## Income Taxes

Corporations pay income taxes just as individuals do. This corporate income tax is usually reported as the final expense on the income statement. For example, in 1999, the final three lines in **EXXONMOBIL**'s income statement were as follows, with all numbers in millions:

| | 1999 | 1998 | 1997 |
|---|---|---|---|
| Income before income taxes | $11,150 | $12,083 | $19,337 |
| Income taxes | 3,240 | 3,939 | 7,605 |
| Net income | $ 7,910 | $ 8,144 | $11,732 |

The $3.240 billion in income tax expense reported by ExxonMobil in 1999 is not necessarily equal to the amount of cash paid for income taxes during the year. In fact, ExxonMobil paid $3.805 billion for income taxes in 1999. Reported income tax expense may differ from the actual amount of cash paid for taxes for two reasons. First, like many other expenses, income taxes are not necessarily paid in cash in the year in which they are incurred. The important point to remember is that reported income tax expense reflects the amount of income taxes attributable to income earned during the year, whether the tax was actually paid in cash during the year or not.

The second reason reported income tax expense may differ from the actual amount of cash paid for taxes is that income tax expense is based on reported financial accounting income, whereas the amount of cash paid for income taxes is dictated by the applicable government tax law. The $3.240 billion income tax expense reported by ExxonMobil in 1999 reflects the total estimated amount of income tax the company expects will eventually be paid based on the in-

come reported in the current year's income statement. However, because the income computed using the tax rules is almost always different from the income computed using financial accounting standards, some of this tax may not have to be paid for several years. In addition, tax rules may require income tax to be paid on income before the financial accounting standards consider that income to be "earned." These differences in tax law income and financial accounting income give rise to deferred income tax items, which are discussed in this section.

Corporations in the United States compute two different income numbers—financial income for reporting to stockholders and taxable income for reporting to the Internal Revenue Service (IRS). The existence of these two "sets of books" seems unethical to some, illegal to others. However, the difference between the stockholders' need for information and the government's need for efficient revenue collection makes the computation of the two different income numbers essential. The different purposes of these reporting systems were summarized by the U.S. Supreme Court in the *Thor Power Tool* case (1979):

> The primary goal of financial accounting is to provide useful information to management, shareholders, creditors, and others properly interested; the major responsibility of the accountant is to protect these parties from being misled. The primary goal of the income tax system, in contrast, is the equitable collection of revenue.

In summary, U.S. corporations compute income in two different ways, and rightly so. Nevertheless, the existence of these two different numbers that can each be called "income before taxes" makes it surprisingly difficult to define what is meant by "income tax expense."

## Deferred Tax Example

Assume that you invest $1,000 by buying shares in a mutual fund on January 1. Also assume that the income tax rate is 40%. According to the tax law, any economic gain you experience through an increase in the value of your mutual fund shares is not taxed until you actually sell your shares. The rationale behind this tax rule is that until you sell your shares, you don't have the cash to pay any tax. Now, assume further that the economy does well and that the value of your mutual fund shares increases to $1,600 by December 31. You decide to prepare partial financial statements to summarize your holdings and the performance of your shares during the year. These financial statements are as follows:

| Balance Sheet | | Income Statement | |
|---|---|---|---|
| Assets: | | Revenues: | |
| Mutual Fund Shares | $1,600 | Gain on Mutual Fund Investment | $600 |

A moment's consideration reveals that this balance sheet and income statement are misleading. Yes, it is true that your shares are now worth $1,600, but if and when you liquidate the shares, you will have to pay income tax of $240 [($1,600 − $1,000) × .40]. Thus, you are overstating your economic position by only reporting the $1,600 in mutual fund shares; you should also report that a liability of $240 exists in relation to these shares. Similarly, it is misleading to report the $600 gain on your income statement without also reporting that, at some future time, you will have to pay $240 in income tax on that gain. A more accurate set of financial statements would appear as follows:

| Balance Sheet | | Income Statement | |
|---|---|---|---|
| Assets: | | Revenues: | |
| Mutual Fund Shares | $1,600 | Gain on Mutual Fund Investment | $600 |
| Liabilities: | | Expenses: | |
| Deferred Income Tax Liability | $ 240 | Income Tax Expense | $240 |

The appropriate journal entry to recognize income tax expense in this case is as follows:

| | | |
|---|---|---|
| Income Tax Expense | 240 | |
| Deferred Income Tax Liability | | 240 |

Note that the deferred income tax liability is not a legal liability because, as far as the IRS is concerned, you do not currently owe any tax on the increase in the value of your mutual fund. Nevertheless, the deferred tax liability is an economic liability that should be reported now because it reflects an obligation that will have to be paid in the future as a result of an event (the increase in the value of the mutual fund shares) that occurred this year.

Now, what if the mutual fund shares had decreased in value from $1,000 to $400? Consider whether the following set of financial statements would accurately reflect your economic position and performance:

| Balance Sheet | | Income Statement | |
|---|---|---|---|
| Assets: | | Expenses: | |
| Mutual Fund Shares | $400 | Loss on Mutual Fund Investment | $600 |

Again, these financial statements are somewhat misleading because they ignore the future tax implications of the change in the value of the mutual fund shares. In this case, when the shares are sold, you will realize a taxable loss of $600. If you have other investment income, that loss can be used to reduce your total taxable income by $600, which will save you $240 ($600 × .40 in income taxes. Thus, in a real sense, this loss on the mutual funds is not all bad because it will provide you with a $240 reduction in income taxes in the year in which you sell the shares. This reduction in taxes is an asset, a deferred income tax asset, because it represents a probable future economic benefit that has arisen from an event (the drop in the value of the mutual fund shares) that occurred this year. Similarly, the income statement effect of this future savings in taxes is to soften the blow of the reported $600 loss. The loss that occurred this year will result in an income tax benefit in the future, so the benefit is reported on this year's income statement, as follows:

| Balance Sheet | | Income Statement | |
|---|---|---|---|
| Assets: | | Expenses: | |
| Mutual Fund Shares | $400 | Loss on Mutual Fund Investment | $ 600 |
| | | Less: Income Tax Benefit | (240) |
| Deferred Income Tax Asset | $240 | | |
| | | Net Loss | $ 360 |

The journal entry to recognize the income tax "expense" is as follows:

| | | |
|---|---|---|
| Deferred Income Tax Asset | 240 | |
| Income Tax Expense | | 240 |

Notice that Income Tax Expense is credited, or reduced, in this entry. If there are other income taxes for the year, this credit will result in a reduction in reported income tax expense. If there are no other income taxes, then the credit amount will be reported on the income statement as an addition to income under the title "income tax benefit."

As this simple mutual fund example illustrates, the amount of income tax expense reported on a company's income statement is not necessarily the same as the amount of income tax the company must pay on taxable income generated during the year. There are literally hundreds

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The value of the deferred tax asset depends on your having other investment income in the future against which the loss on the mutual fund shares can be offset. Thus, accounting for deferred tax assets is complicated by the fact that one must make an assumption about the likelihood that a company will have enough taxable income in the future to be able to take advantage of the deferred tax benefit.

of accounting areas in which income is taxed by the taxing authorities in a different year than the year in which the income is reported to the financial statement users in the income statement. The details of deferred income tax accounting are among the most complicated issues covered in intermediate accounting courses.

## to summarize

The amount of sales tax collected is reported as a liability until the funds are forwarded to the appropriate government agency. When property taxes are paid in advance, the amount is reported as a prepaid asset until the time period covered by the property tax has expired. Reported income tax expense is not merely the amount of income tax that a company legally owes for a given year. Because of differences between financial accounting rules and income tax rules, revenues and expense can enter into the computation of income in different years for financial accounting purposes and for income tax purposes. Proper accounting for deferred income taxes ensures that reported income tax expense for a year represents all of the income tax consequences arising from transactions undertaken during the year.

**3**

Distinguish between contingent items that should be recognized in the financial statements and those that should be merely disclosed in the financial statement notes.

**contingency** Circumstances involving potential losses or gains that will not be resolved until some future event occurs.

## CONTINGENCIES

By its very nature, business is full of uncertainty. As discussed in relation to employee compensation and taxes, proper recording of an expense in the current period frequently requires making estimates about what will occur in future periods. Sometimes the very existence of an asset or liability depends on the occurrence, or nonoccurrence, of a future event. For example, whether a company will have to make a payment as a result of a lawsuit arising from events occurring this year depends on a judge or jury ruling that may not be known for several years. In accounting terms, a **contingency** is an uncertain circumstance involving a potential gain or loss that will not be resolved until some future event occurs. In this section, we discuss the conceptual issues associated with contingencies and the accounting for events for which the outcome is uncertain.

If you were a financial statement user, would you want to be informed of events known to management that might have an adverse effect on the company's future? Consider as an example a lawsuit filed against a company. Because litigation can take years, how should that company account for the possibility of a loss? Would you want the company to wait until the lawsuit is resolved before informing financial statement users of the litigation? Of course not. You would want to know about the lawsuit if the outcome could potentially materially affect the operations of the company. But would you want to know about every lawsuit filed against the company? Probably not.

Accounting standard-setters have addressed this issue and determined that the proper disclosure for a contingency depends upon the assessed outcome. The first thing to note is that accounting standard-setters determined that accounting for contingent gains is, in most cases, inappropriate. Contingent gains are typically not accounted for until the future event relating to the contingent gain resolves itself. Contingent liabilities are to be accounted for differently depending on an assessment of the likely outcome of the contingency. Exhibit 8-3 contains the relevant terms, definitions, and proper accounting for contingent liabilities.

If you think about it, this probability spectrum makes a great deal of sense. For example, if it is likely that your company will lose a lawsuit in which it is the defendant, then it would be appropriate to account for that outcome now by recognizing a loss and establishing a payable. If the likelihood of your company losing the case is slight, then it makes sense to do nothing. And if you are unsure of the outcome, then disclosure in the notes seems appropriate.

**exhibit 8-3** Accounting for Contingent Liabilities

| Term | Definition | Accounting |
|---|---|---|
| Probable | The future event is likely to occur. | Estimate the amount of the contingency and make the appropriate journal entry; provide detailed disclosure in the notes. |
| Reasonably possible | The chance of the future event occurring is more than remote but less than likely. | Provide detailed disclosure of the possible liability in the notes. |
| Remote | The chance of the future event occurring is slight. | No disclosure required. |

Why might a company hesitate to assess the likelihood of losing an ongoing lawsuit as being probable? If you were the attorney for the plaintiff, how could you use the resulting information from the financial statements?

The problem in implementing these terms relates to assessing the likelihood of an outcome. Who is to say if your company will lose a lawsuit? The company must obtain objective assessments as to the possible outcome of future events. In the case of litigation, the company would ask its attorneys about the possible outcome. The firm auditing the company might use its own attorneys to assess the possible outcome. In any case, companies are required to make objective assessments as to the likely outcome of contingent events and then account for those events based on that assessment.

MICROSOFT's 1999 annual report (see Appendix A) contains the company's disclosure relating to contingencies. At the time, the company was being investigated by the Justice Department for potential monopolistic practices. Note that the disclosure relating to the antitrust contingency is minimal, consisting of just two paragraphs. Contrast Microsoft's disclosure with the 1999 disclosure provided by PHILIP MORRIS, the tobacco company, relating to its involvement in ongoing tobacco litigation. The company provides over seven pages of disclosure relating to its potential liability.

## Environmental Liabilities

**environmental liabilities** Obligations incurred because of damage done to the environment.

Environmental liabilities have gained increasing attention of late because of their potential magnitude. **Environmental liabilities** are obligations incurred because of damage done by companies to the environment. Common environmental liabilities include cleanup costs associated with oil spills, toxic waste dumps, or air pollution. These liabilities are usually brought to the company's attention as a result of fines or penalties imposed by the federal government or when damage that is caused by the company is recognized. Although the accounting and disclosures associated with environmental liabilities fall under the guidelines for contingencies discussed in the previous section, environmental liabilities present a unique problem.

In the case of a lawsuit, one can typically make a reasonable estimate as to the upper bound of the potential settlement. For example, if your company is being sued for $4 million, it is unlikely that any potential settlement will be higher than that amount. In the case of environmental liabilities, it is often very difficult to estimate the cost of environmental cleanup. Thus, while the company may deem it probable that a liability exists, estimating that liability can be difficult. Recall that the contingency standard requires a liability to be recorded on the company's books if it is probable and estimable. If a potential liability is possible and estimable, the standards require note disclosure.

What about the situation where a potential liability is probable but cannot be estimated with much accuracy, as is often the case with environmental liabilities? Obviously, if a company cannot estimate a probable obligation, it makes sense to provide extensive note disclosure. Most companies will estimate a least a minimum amount and provide note disclosure as to the possibility of additional costs. As an illustration, EXXONMOBIL disclosed the information in Exhibit 8-4 in its 1991 and 1999 annual reports in connection with lawsuits filed as a result of the *Exxon Valdez* oil spill. Note that in 1991, the company sounds quite optimistic that it has set-

**exhibit 8-4** ExxonMobil—1991 and 1999 Disclosures Concerning *Exxon Valdez* Oil Spill

**Disclosure in 1991**

On March 24, 1989, the Exxon Valdez, a tanker owned by Exxon Shipping Company, a subsidiary of Exxon Corporation, ran aground on Bligh Reef in Prince William Sound off the port of Valdez, Alaska, and released approximately 260,000 barrels of crude oil. More than 315 lawsuits, including class actions, have been brought in various courts against Exxon Corporation and certain of its subsidiaries.

On October 8, 1991, the United States District Court for the District of Alaska approved a civil agreement and consent decree. . . . These agreements provided for guilty pleas to certain misdemeanors, the dismissal of all felony charges and the remaining misdemeanor charges by the United States, and the release of all civil claims against Exxon . . . by the United States and the state of Alaska. The agreements also released all claims related to or arising from the oil spill by Exxon. . . .

Payments under the plea agreement totaled $125 million—$25 million in fines and $100 million in payments to the United States and Alaska for restoration projects in Alaska. Payments under the civil agreement and consent decree will total $900 million over a ten-year period. The civil agreement also provides for the possible payment, between September 1, 2002, and September 1, 2006, of up to $100 million for substantial loss or decline in populations, habitats, or species in areas affected by the oil spill which could not have been reasonably anticipated on September 25, 1991.

The remaining cost to the corporation from the Valdez accident is difficult to predict and cannot be determined at this time. It is believed the final outcome, net of reserves already provided, will not have a materially adverse effect upon the corporation's operations or financial condition.

**Disclosure in 1999**

On September 24, 1996, the United States District Court for the District of Alaska entered a judgment in the amount of $5.058 billion in the Exxon Valdez civil trial that began in May 1994. The District Court awarded approximately $19.6 million in compensatory damages to fisher plaintiffs, $38 million in prejudgment interest on the compensatory damages and $5 billion in punitive damages to a class composed of all persons and entities who asserted claims for punitive damages from the corporation as a result of the Exxon Valdez grounding. The District Court also ordered that these awards shall bear interest from and after entry of the judgment. The District Court stayed execution on the judgment pending appeal based on a $6.75 billion letter of credit posted by the corporation. The corporation has appealed the judgment. The corporation has also appealed the District Court's denial of its renewed motion for a new trial. The United States Court of Appeals for the Ninth Circuit heard oral arguments on the appeals on May 3, 1999. The corporation continues to believe that the punitive damages in this case are unwarranted and that the judgment should be set aside or substantially reduced by the appellate courts.

The ultimate cost to ExxonMobil from the lawsuits arising from the Exxon Valdez grounding is not possible to predict and may not be resolved for a number of years.

tled the bulk of the claims related to the oil spill and that any further claims "will not have a materially adverse effect" upon the company. This optimistic disclosure is particularly interesting in light of the $5 billion adverse judgment discussed in the 1999 disclosure.

## to summarize

Contingent liabilities depend on some future event to determine if a liability actually exists. Companies are required to assess the likelihood of certain future events occurring and then, based on that assessment, provide appropriate disclosure. If the company deems the future event to be likely, the journal

entries are made and the liability is accrued. If the future event is deemed reasonably possible, note disclosure is required. For those events considered remote, no disclosure is required. Environmental liabilities represent a case where a liability exists but measurement is difficult. A minimum liability is typically established along with extensive note disclosure.

## 4 CAPITALIZE VERSUS EXPENSE

Understand when an expenditure should be recorded as an asset and when it should be recorded as an expense.

To this point in the text, we have assumed that the decision of expensing a cost to the income statement or capitalizing an expenditure and placing it on the balance sheet as an asset is an easy one. In reality, that decision is often difficult and one that makes accounting judgment critical. For example, should a building that cost $1 million and is expected to benefit 20 future periods be capitalized and placed on the balance sheet? The answer is pretty clear—of course. What about office supplies that are used this period? Will they benefit future periods? No, and as a result, the costs of those supplies should be expensed. What about research and development costs? Should they be capitalized as an asset or expensed to the income statement? Now you see the problem. Sometimes it is difficult to determine whether an expenditure will benefit the future. Exhibit 8-5 provides an expense/asset continuum that demonstrates the difficulty of the decision to capitalize or expense a cost.

The endpoints of the continuum are easy. The decision starts to get fuzzy, though, once you leave the endpoints. Do repairs and maintenance benefit future periods (and therefore need to be capitalized), or are they necessary expenditures just to keep a machine running (and should be expensed)? To illustrate the issues involved in deciding whether an expenditure should be capitalized or expensed, two specific areas will be discussed—research and development (R&D) and advertising.

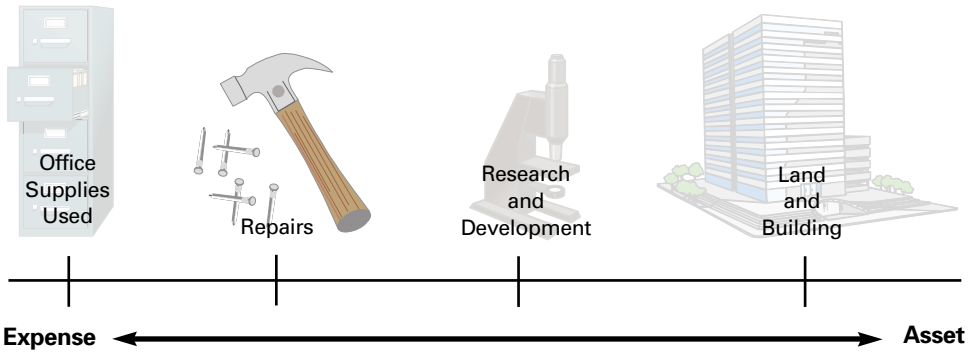
### Research and Development

Research is an activity undertaken to discover new knowledge that will be useful in developing new products, services, or processes. Development involves the application of research findings to develop a plan or design for new or improved products and processes. **EXXONMOBIL** reports that, from 1997 through 1999, it spent an average of $715 million per year on R&D activities.

Because of the uncertainty surrounding the future economic benefit of R&D activities, the FASB decided in 1974 that research and development expenditures should be expensed in the period incurred. Among the arguments for expensing R&D costs is the frequent inability to find a definite causal re-

STOP & THINK Would you expect that a rule requiring all firms to expense R&D outlays would cause R&D expenditures to decrease? Why or why not?

exhibit 8-5 Expense/Asset Continuum



**fyi**

The International Accounting Standards Committee (IASC) has established an R&D accounting rule that many think is superior to the FASB rule. The IASC rule requires research costs to be expensed and development costs to be capitalized. Research costs are defined as those R&D costs incurred before technological feasibility has been established.

lationship between the expenditures and future revenues. Sometimes very large expenditures do not generate any future revenue, while relatively small expenditures lead to significant discoveries that generate large revenues. The FASB found it difficult to establish criteria that would distinguish between those R&D expenditures that would most likely benefit future periods and those that would not.

In summary, the FASB concluded that R&D expenditures are undertaken to benefit future periods, but that it is impractical to identify which R&D expenditures actually do provide future economic benefit. Accordingly, all R&D costs are to be recorded as expenses in the year they are incurred. This rule leads to a systematic overstatement of R&D expenses and a systematic understatement of R&D assets. The rule was roundly criticized in 1974 as the FASB prepared to release it. The FASB received many comments predicting that if firms were required to expense all R&D costs, they would be forced to significantly cut back on research expenditures to avoid hurting reported earnings. This, according to these comment letters, would cripple the U.S. economy. And the U.S. economy did indeed suffer in the mid-1970s, and R&D expenditures did decrease, but these occurrences may have had more to do with skyrocketing oil prices and double-digit inflation than with the R&D accounting rule passed by the FASB.

## Advertising

Every year in the two weeks of hype preceding the Super Bowl, we hear about the incredible number of media people covering the event and about how much money advertisers are paying for a 30-second spot during the broadcast. We also hear a little bit about the football teams. With advertising costs running in excess of $2 million for 30 seconds, one has to believe that the advertisers expect some future economic benefit from the advertising. So, should advertising costs be capitalized or expensed?

For accounting purposes, the general presumption is that advertising costs should be expensed because of the uncertainty of the future benefits. However, in selected cases in which the future benefits are more certain, advertising costs should be capitalized. This type of advertising involves targeted advertising to customers who have purchased products in the past. Such advertising is also characterized by the ability to estimate how many customers will respond favorably. For example, **SEARS** discloses in the notes to its 1999 financial statements that it expenses newspaper, television, and radio advertising costs but capitalizes the cost of specialty catalogs and other direct response advertising. As of December 31, 1999, Sears reported an "advertising asset" of $180 million in its balance sheet. Of course, this is a rather small amount compared to the $1.63 billion in advertising that Sears expensed during 1999.

As these discussions of R&D and advertising illustrate, capitalize-or-expense decisions can be quite difficult from a conceptual standpoint. The general rule of thumb is that, when there is significant uncertainty about whether an expenditure should be capitalized or expensed, expense it. This approach is in line with the traditional conservatism of accounting, but be aware that it can result in a significant understatement of the economic assets of a company.

## to summarize

Conceptually, a cost should be recorded as an asset whenever it has a probable future economic benefit. In practice, it is frequently quite difficult to tell when a cost should be recorded as an asset (capitalized) and when it should be recorded as an expense. In some areas, such as research and development (R&D) and advertising, specific accounting rules have been developed to create more uniformity about which costs should be expensed and which should be capitalized.

**5**

Prepare an income statement summarizing operating activities as well as other revenues and expenses, extraordinary items, and earnings per share.

# SUMMARIZING OPERATIONS ON AN INCOME STATEMENT

Having now completed our discussion of operating revenues and expenses (in Chapters 6, 7, and thus far in 8), you are ready to examine an income statement, such as the one in Exhibit 8-6, and see how operating results are communicated to investors and creditors. The numbers in the income statement do not relate to any previous examples; they are shown here for illustrative purposes only.

This income statement shows that with net sales revenue of $2,475,000, P & L Company had net income of $385,000. The income statement classifies and accounts for the other $2,090,000 ($2,475,000 − $385,000). Sales revenue, cost of goods sold, and operating expenses (which are separated into selling expenses and general and administrative expenses on the income statement) have already been explained. It is important to note that operating income of $726,000 shows how much P & L Company earned from carrying on its major operations. These items constitute the major ongoing components of the income statement. Items shown at the bottom of the income statement are not part of the main operations of the business or are unusual and nonrecurring in nature.

**f y i**

Another item that is reported in a separate section of the income statement relates to discontinued operations. When a company decides to cease the operations of a segment or a division, it must provide careful disclosure as to the past profitability of the segment and the expected costs associated with closing the segment.

## Other Revenues and Expenses

**Other revenues and expenses** are those items incurred or earned from activities outside of, or peripheral to, the normal operations of a firm. For example, a manufacturing company that receives dividends from its investments in the stock of another firm would show those dividend revenues as "Other Revenues and Expenses." This way, investors can see how much of a firm's income is from its major operating activity and how much is from peripheral activities, such as investing in other companies. The most common items reported in this section are interest and investment revenues and expenses. The other revenues and expenses category also includes gains and losses from the sale of assets other than inventory, such as land and buildings.

**other revenues and expenses** Items incurred or earned from activities that are outside of, or peripheral to, the normal operations of a firm.

## Extraordinary Items

The **extraordinary items** section of an income statement is reserved for reporting special nonoperating gains and losses. This category is restrictive and includes only those items that are (1) unusual in nature, (2) infrequent in occurrence, and (3) material in amount. They are separated from other revenues and expenses so that readers can identify them as onetime, or nonrecurring, events. Extraordinary items are rare but can include losses or gains from floods, fires, earthquakes, and so on. For example, in 1980 when Mount St. Helens erupted in Washington, mudslides and flooding adversely affected much of the **WEYERHAEUSER COMPANY**'s timberlands. Weyerhaeuser reported an extraordinary loss of $66.7 million in 1980 to cover standing timber, buildings, equipment, and other damaged items. Certain other types of gains and losses are required by generally accepted accounting principles to be reported as extraordinary items. These involve technical accounting issues that are discussed in more advanced texts.

**extraordinary items** Nonoperating gains and losses that are unusual in nature, infrequent in occurrence, and material in amount.

The 1980 eruption of Mount St. Helens caused **WEYERHAEUSER COMPANY** to report an extraordinary loss of $66.7 million. However, it's not likely Weyerhaeuser will have to worry about that extraordinary event happening again anytime soon!

If a firm has an extraordinary loss, its taxes are lower than they would be on the basis of ordinary operations. P & L Company, for example, actually paid only $165,000 ($195,000 based on operations less a $30,000 tax benefit from the extraordinary loss) in taxes. On the other hand, if a firm has an extraordinary gain, its taxes are increased. Therefore, to ensure that the full effect of the gain or loss is presented, extraordinary items are always shown together with their tax effects so

exhibit 8-6 Sample Income Statement

**P & L Company**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | | |
|---|---|---|---|
| Revenues: | | | |
| Gross sales revenue | | $2,500,000 | |
| Less: Sales returns | | (12,000) | |
| Less: Sales discounts | | (13,000) | |
| Net sales revenue | | | $2,475,000 |
| Cost of goods sold | | | 1,086,000 |
| Gross margin | | | $1,389,000 |
| Operating expenses: | | | |
| Selling expenses: | | | |
| Sales salaries expense | $200,000 | | |
| Sales commissions expense | 60,000 | | |
| Advertising expense | 45,000 | | |
| Delivery expense | 14,000 | | |
| Total selling expenses | | $ 319,000 | |
| General and administrative expenses: | | | |
| Administrative salaries expense | $278,000 | | |
| Rent expense, office equipment | 36,000 | | |
| Property tax expense | 22,000 | | |
| Miscellaneous expenses | 8,000 | | |
| Total general and administrative expenses | | 344,000 | |
| Total operating expenses | | | 663,000 |
| Operating income | | | $ 726,000 |
| Other revenues and expenses: | | | |
| Dividend revenue | | $ 5,000 | |
| Gain on sale of land | | 4,000 | |
| Interest expense | | (85,000) | |
| Net other revenues and expenses | | | (76,000) |
| Income from operations before income taxes | | | $ 650,000 |
| Income taxes on operations (30%) | | | 195,000 |
| Income before extraordinary item | | | $ 455,000 |
| Extraordinary item: | | | |
| Flood loss | | $ (100,000) | |
| Income tax effect (30%) | | 30,000 | (70,000) |
| Net income | | | $ 385,000 |
| Earnings per share (100,000 shares outstanding): | | | |
| Income before extraordinary item | | | $4.55 |
| Extraordinary loss | | | (0.70) |
| Net income | | | $3.85 |

that a net-of-tax amount can be seen. Thus, income tax expense may appear in two places on the income statement: below operating income before income taxes and in the extraordinary items section.

**earnings per share (EPS)** The amount of net income (earnings) related to each share of stock; computed by dividing net income by the number of shares of stock outstanding during the period.

## Earnings per Share

As noted in Chapter 2, a company is required to show **earnings per share (EPS)** on the income statement. If extraordinary items are included on the income statement, a firm will report EPS figures on income before extraordinary items, on extraordinary items, and on net income.

**caution**

Actual EPS computations are much more complicated than shown here. Changes in the shares outstanding during the period must be considered when calculating EPS. In addition, there is another EPS figure, called diluted earnings per share, that considers the potential effect on EPS of things like the exercising of stock options by shareholders.

Earnings per share is calculated by dividing a firm's net income by the number of shares of stock outstanding during the period. Exhibit 8-6 assumes that 100,000 shares of stock are outstanding. Earnings per share amounts are important because they allow potential investors to compare the profitability of all firms, whether large or small. Thus, the performance of a company earning $200 million and having 200,000 shares of stock outstanding can be compared with a company earning $60,000 and with 30,000 shares outstanding.

## Differing Income Statement Formats

The income statement featured in Exhibit 8-6 demonstrates detailed disclosure of a company's operations. Most companies do not provide that level of detail. The information contained in income statements varies from company to company. For example, **MICROSOFT** (see Appendix A) summarizes the results of its operations in 16 lines. **IBM**, on the other hand, provides detailed revenue and cost figures on the face of its income statements for each of its five operating segments (hardware sales, services, software, maintenance, and rentals). **FORD MOTOR COMPANY** provides detail in its income statements as to the operations of its two very different lines of business—automotive and financial services. Keep in mind that the format of the income statement will vary across companies but the information contained in the income statement is the same—revenues and expenses.

## to summarize

The results of operating activities are summarized and reported on an income statement. On an income statement, cost of goods sold is subtracted from net sales to arrive at gross margin, or the amount a company marks up its inventory. Operating expenses are then subtracted from gross margin to arrive at operating income. Nonoperating items, such as other revenues and expenses, extraordinary items, and earnings per share, are reported on the income statement below operating income.

# review of learning objectives

**1 Account for the various components of employee compensation expense.** Total employee compensation can involve some or all of the following:

- *Payroll.* Companies serve as the agents of federal, state, and local governments in withholding necessary taxes from employees' wages and salaries. These withholdings are then periodically forwarded to the appropriate government unit.
- *Compensated absences.* The value of vacation and sick days earned this year should be reported as an expense this year even though the actual vacation or sick days are not expected to be used until a future year.
- *Bonuses.* Employee bonuses, especially those for top management, are frequently based on reported accounting numbers such as net income. This creates some incentive for managers to manipulate reported earnings in order to boost their own bonuses.
- *Stock options.* The receipt of stock options gives managers an incentive to take value-enhancing actions that will increase their company's stock price. The intrinsic value method of accounting for stock options assumes that options have potential value only on the day that they are granted; this method almost always results in no reported compensation expense. A more theoretically satisfying accounting method is the fair value method, which results in reported compensation expense being equal to the estimated value of the options granted. The FASB encourages use of the fair value method, but almost all companies continue to use the intrinsic value method.

- *Postemployment benefits.* When a company makes a decision to terminate employees as part of a restructuring, an expense equal to the expected value of the employee severance benefits is reported in the year in which the termination decision is made.
- *Pensions.* The difference between the pension obligation liability and the market value of the pension fund assets is reported as a net asset or liability in the balance sheet. Net pension expense is composed of interest cost and service cost, which are offset by the expected return on the pension fund assets.
- *Postretirement benefits other than pensions.* Companies are required to report an annual expense equal to the value of retiree benefits such as health care and life insurance that were earned during the year. These benefit plans are not structured as formally as pension plans.

**2 Compute income tax expense, including appropriate consideration of deferred tax items.** Sales taxes collected are reported as a liability until the funds are forwarded to the appropriate government agency. When property taxes are paid in advance, the amount is reported as a prepaid asset until the time period covered by the property tax has expired. With respect to income tax, corporations in the United States compute two different income numbers—financial income for reporting to stockholders and taxable income for reporting to the IRS. For income tax purposes, some income is not taxed until after it has already been reported as financial accounting income in a previous year. In this case, a deferred income tax liability is recognized in the year when the income is first reported in the income statement to reflect that the income will be taxed in a subsequent year. Similarly, some income tax deductions are not allowed for income tax purposes until after they have been reported as a financial accounting expense in a prior year. These items represent potentially valuable future deductions and are recorded as deferred income tax assets.

**3 Distinguish between contingent items that should be recognized in the financial statements and those that should be merely disclosed in the financial statement notes.** A contingent item is one for which the existence of a liability or asset depends on the outcome of uncertain future events. An example is litigation. A company must make an assessment as to the likely outcome and then account for the event accordingly. An event that is "probable" will be recognized on the financial statements. An event for which the outcome is reasonably possible will be disclosed in the notes to the financial statements, and an event considered remote is not disclosed.

Environmental liabilities represent another difficulty for businesses. These liabilities result when firms damage the environment. The difficulty with these liabilities is determining an amount. Typically, estimates are made along with extensive note disclosure.

**4 Understand when an expenditure should be recorded as an asset and when it should be recorded as an expense.** Many expenditures fall into a gray area where it isn't certain whether they should be expensed immediately or capitalized as assets. Specific practices have arisen with respect to many of these difficult-to-classify expenditures. For research and development expenditures, all regular R&D costs are expensed as incurred. For advertising expenditures, most advertising costs are expensed immediately. However, the cost of targeted advertising for which customer response can be reasonably estimated is capitalized.

**5 Prepare an income statement summarizing operating activities as well as other revenues and expenses, extraordinary items, and earnings per share.** The income statement is the means of reporting net income. Its major sections are revenues, cost of goods sold, operating expenses, operating income, other revenues and expenses, extraordinary items, net income, and earnings per share.

In addition to cost of goods sold expense, businesses incur many other operating expenses. With accrual accounting these are reported on the income statement as they are incurred, not when they are paid. Interest and other nonoperating revenues and expenses are classified separately below operating income. The income statement is not complete until all extraordinary items and earnings-per-share amounts have been included.

## key terms and concepts

bonus 356
contingency 365
defined benefit plan 358
defined contribution plan 358
earnings per share (EPS) 371
employee stock options 356
environmental liabilities 366
extraordinary items 370
other revenues and expenses 370
pension 358
postemployment benefits 357
sales tax payable 361
Social Security (FICA) taxes 354

# review problem

**The Income Statement**

From the following information prepare an income statement for Southern Corporation for the year ended December 31, 2003. Assume that there are 200,000 shares of stock outstanding.

| | |
|---|---|
| Sales Returns | $ 50,000 |
| Sales Discounts | 70,000 |
| Gross Sales Revenue | 9,000,000 |
| Flood Loss | 80,000 |
| Income Taxes on Operations | 500,000 |
| Administrative Salaries Expense | 360,000 |
| Sales Salaries Expense | 800,000 |
| Rent Expense (General and Administrative) | 32,000 |
| Utilities Expense (General and Administrative) | 4,000 |
| Supplies Expense (General and Administrative) | 16,000 |
| Delivery Expense (Selling) | 6,300 |
| Payroll Tax Expense (Selling) | 6,000 |
| Automobile Expense (General and Administrative) | 3,800 |
| Insurance Expense (General and Administrative) | 34,000 |
| Advertising Expense (Selling) | 398,000 |
| Interest Revenue | 6,000 |
| Interest Expense | 92,000 |
| Insurance Expense (Selling) | 7,000 |
| Entertainment Expense (Selling) | 7,200 |
| Miscellaneous Selling Expenses | 15,000 |
| Miscellaneous General and Administrative Expenses | 10,800 |
| Tax rate applicable to flood loss | 30% |
| Cost of Goods Sold | 5,950,000 |

**Solution**

The first step in preparing an income statement is classifying items, as follows:

| Revenue Accounts | |
|---|---|
| Sales Returns | $ 50,000 |
| Sales Discounts | 70,000 |
| Gross Sales Revenue | 9,000,000 |

| Cost of Goods Sold Accounts | |
|---|---|
| Cost of Goods Sold | $5,950,000 |

| Selling Expense Accounts | |
|---|---|
| Sales Salaries Expense | $800,000 |
| Delivery Expense | 6,300 |
| Payroll Tax Expense | 6,000 |
| Advertising Expense | 398,000 |
| Insurance Expense | 7,000 |
| Entertainment Expense | 7,200 |
| Miscellaneous Selling Expenses | 15,000 |

| General and Administrative Expense Accounts | |
|---|---|
| Administrative Salaries Expense | $360,000 |
| Rent Expense | 32,000 |
| Utilities Expense | 4,000 |
| Supplies Expense | 16,000 |
| Automobile Expense | 3,800 |
| Insurance Expense | 34,000 |
| Miscellaneous General and Administrative Expenses | 10,800 |

| Other Revenue and Expense Accounts | |
|---|---|
| Interest Revenue | $ 6,000 |
| Interest Expense | 92,000 |

| Miscellaneous Accounts | |
|---|---|
| Income Taxes on Operations | $500,000 |

| Extraordinary Item Accounts | |
|---|---|
| Flood Loss | $80,000 |
| Tax rate | 30% |

Once the accounts are classified, the income statement is prepared by including the accounts in the following format:

Net Sales Revenue (Gross Sales Revenue − Sales Returns − Sales Discounts)
− Cost of Goods Sold
= Gross Margin
− Selling Expenses
− General and Administrative Expenses
= Operating Income
+/− Other Revenues and Expenses (add Net Revenues, subtract Net Expenses)
= Income before Income Taxes
− Income Taxes on Operations
= Income before Extraordinary Items
+/− Extraordinary Items (add Extraordinary Gains, subtract Extraordinary Losses, net of applicable taxes)
= Net Income

After net income has been computed, earnings per share is calculated and added to the bottom of the statement. It is important that the proper heading be included.

**Southern Corporation**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Revenues: | | |
| Gross sales revenue | $9,000,000 | |
| Less: Sales returns | (50,000) | |
| Less: Sales discounts | (70,000) | |
| Net sales revenue | | $8,880,000 |

*(continued)*

| | | | |
|---|---|---|---|
| Cost of goods sold | | | 5,950,000 |
| Gross margin | | | $2,930,000 |
| Operating expenses: | | | |
| Selling expenses: | | | |
| Sales salaries expense | $800,000 | | |
| Delivery expense | 6,300 | | |
| Payroll tax expense | 6,000 | | |
| Advertising expense | 398,000 | | |
| Insurance expense | 7,000 | | |
| Entertainment expense | 7,200 | | |
| Miscellaneous expenses | 15,000 | | |
| Total selling expenses | | $1,239,500 | |
| General and administrative expenses: | | | |
| Administrative salaries expense | $360,000 | | |
| Rent expense | 32,000 | | |
| Utilities expense | 4,000 | | |
| Supplies expense | 16,000 | | |
| Automobile expense | 3,800 | | |
| Insurance expense | 34,000 | | |
| Miscellaneous expenses | 10,800 | | |
| Total general and administrative expenses | | 460,600 | |
| Total operating expenses | | | 1,700,100 |
| Operating income | | | $1,229,900 |
| Other revenues and expenses: | | | |
| Interest revenue | | $ 6,000 | |
| Interest expense | | (92,000) | |
| Net other revenues and expenses | | | (86,000) |
| Income from operations before income taxes | | | $1,143,900 |
| Income taxes on operations | | | 500,000 |
| Income before extraordinary item | | | $ 643,900 |
| Extraordinary item: | | | |
| Flood loss | | $ (80,000) | |
| Income tax effect (30%) | | 24,000 | (56,000) |
| Net income | | | $ 587,900 |
| Earnings per share: | | | |
| Before extraordinary items | $3.22 | ($643,900 ÷ 200,000 shares) | |
| Extraordinary loss | (0.28) | ($ 56,000 ÷ 200,000 shares) | |
| Net income | $2.94 | ($587,900 ÷ 200,000 shares) | |

## discussion questions

1. Why is the accounting for payroll-related liabilities more complicated than the accounting for other current liabilities?
2. If the period of time covered by a company's payroll does not coincide with the last day of the year for financial reporting, how is accounting for the payroll affected by this situation?
3. What is a compensated absence?
4. What danger is there in basing a manager's bonus on reported net income?
5. What is the primary difference between the intrinsic value method and the fair value method of accounting for stock-based compensation plans? Which method does the FASB recommend?
6. What additional disclosure is required of companies that use the intrinsic value method?
7. Severance benefits resulting from a company restructuring are reported as an expense in the period that the restructuring decision is made rather than when the benefits are actually paid. Why?

8. What is the difference between a defined contribution pension plan and a defined benefit pension plan?
9. How is a company's pension obligation reported in its balance sheet?
10. List and briefly discuss the three components of pension expense discussed in the chapter.
11. In what ways do postretirement health-care and life insurance benefit plans differ from postretirement pension plans?
12. Why is an end-of-year adjusting entry for property taxes often necessary?
13. In your opinion, what is the primary objective of determining pretax financial accounting income? How does this objective differ from the objectives of determining taxable income as defined by the IRS?
14. When and how does a company record the amount owed to the government for income taxes for a given year?
15. What causes deferred income taxes?
16. What is the difference between a "contingent liability" and a "liability"?
17. Escalating environmental liabilities are a major concern of companies today. How does a company know when to record such liabilities?
18. Currently **MICROSOFT** spends a tremendous amount of money on research and development costs to continuously develop new products. How are such R&D costs accounted for?
19. XYZ Corporation pays for advertising costs all the time. Sometimes the company records these payments as assets, and sometimes it records them as expenses. Why would XYZ use different accounting treatments?
20. What types of items would be included on an income statement as "other revenues and expenses"?
21. More than ever before, tremendous attention is being paid to a company's earnings-per-share number. Why do you think investors and creditors pay so much attention to earnings per share?

## discussion cases

### CASE 8-1 RECORDING LIABILITIES AND THE EFFECT ON BONUSES

John Flowers, president of Marquette Company, is paid a salary plus a bonus equal to 10% of pretax income. The company has just computed its pretax income to be $3.4 million. Based on this income, Flowers expects to receive a bonus of $340,000. However, the company has just been told by outside experts that it may have an environmental liability of $2.1 million and that, based on new actuarial estimates, the recorded amount of postretirement benefits is too low by $1.2 million. The experts recommend that both of these liabilities be recorded, which would reduce income to $100,000 and Flowers's bonus to $10,000. Flowers believes he does not need to record the adjustments for the following reasons: the environmental liability is not certain, the amount of the potential liability can't be accurately estimated, and "actuarial estimates" are always changing. Is Flowers violating GAAP if he refuses to allow the company to adjust pretax income, or is the decision to not record the adjustments acceptable because of the uncertainty of the liabilities and the amounts?

### CASE 8-2 QUESTIONING THE ACCOUNTING FOR PENSIONS, RESEARCH, AND INCOME TAXES

Tatia Wilks, the president of Lewbacca Company, is concerned about the low earnings that Lewbacca is scheduled to report this year. She called the company's accounting staff into her office to question them about the accounting treatment of several items. She raised the following points:

a. Why do we have to report an expense this year associated with our pension plan? Our company is new, and none of our employees is within even 15 years of retirement. Accordingly, the pension plan won't cost us anything for at least 15 years.
b. Research to find new products and improve our old products is one of our key competitive advantages. However, you tell me that all of the money we spend on research is reported as an expense this year. This is silly because the results of our research comprise our biggest economic asset.

c. We have an excellent staff of tax planners who work hard to legally minimize the amount of income taxes we pay each year. However, I see in the notes to the financial statements that you are requiring our company to report a "deferred income tax expense" for taxes that we don't even owe yet! Why?

How would you respond to each of these points?

## exercises

### EXERCISE 8-1

### PAYROLL ACCOUNTING

Stockbridge Stores, Inc., has three employees, Frank Wall, Mary Jones, and Susan Wright. Summaries of their 2003 salaries and withholdings are as follows:

| Employee | Gross Salaries | Federal Income Taxes Withheld | State Income Taxes Withheld | FICA Taxes Withheld |
|---|---|---|---|---|
| Frank Wall | $54,000 | $6,500 | $2,500 | $4,131 |
| Mary Jones | 39,000 | 4,800 | 1,900 | 2,984 |
| Susan Wright | 34,000 | 4,250 | 1,500 | 2,601 |

1. Prepare the summary entry for salaries paid to the employees for the year 2003.
2. Assume that, in addition to FICA taxes, the employer has incurred $192 for federal unemployment taxes and $720 for state unemployment taxes. Prepare the summary journal entry to record the payroll tax liability for 2003, assuming no taxes have yet been paid.
3. **Interpretive Question:** What other types of items are frequently withheld from employees' paychecks in addition to income taxes and FICA taxes?

### EXERCISE 8-2

### BONUS COMPUTATION AND JOURNAL ENTRY

Pete Mehling is the president of Mehling Company, and his cousin, John Mehling, is the vice president. Their compensation package includes bonuses of 3% for Pete Mehling and 2% for John Mehling of net income that exceeds $200,000. Net income for the year 2003 has just been computed to be $990,000.

1. Compute the amount of bonuses to be paid to Pete and John Mehling.
2. Prepare the journal entries to record the accrual and payment of the bonuses. Summarize all withholding taxes related to the bonuses in an account called Various Taxes Payable. Taxes payable on the bonuses total $9,200 for Pete and $6,300 for John.

### EXERCISE 8-3

### STOCK OPTIONS: INTRINSIC AND FAIR VALUE METHODS

On January 1, 2003, the Magily Company established a stock option plan for its senior employees. A total of 60,000 options were granted that permit employees to purchase 60,000 shares of stock at $48 per share. Each option had a fair value of $11 on the date the options were granted. The market price for Magily stock on January 1, 2003, was $50. The employees are required to remain with Magily Company for the entire year of 2003 in order to be able to exercise these options.

Compute the total amount of compensation expense to be associated with these options under the:

1. fair value method.
2. intrinsic value method.

## EXERCISE 8-4 STOCK OPTIONS: REQUIRED DISCLOSURE

Refer to the information in Exercise 8-3. Magily's income for 2003, before subtracting any compensation expense associated with the stock option plan, is $500,000.

Prepare the required supplemental disclosure for 2003 assuming that Magily decides to use the intrinsic value method.

## EXERCISE 8-5 PENSIONS ON THE BALANCE SHEET

Pension plan information for Rabona Company is as follows:

| | |
|---|---|
| December 31, 2003 | |
| Pension obligation liability | $3,000,000 |
| December 31, 2003 | |
| Pension fund assets | 3,150,000 |
| During 2003 | |
| Total pension expense | 200,000 |

How will this information be reported on Rabona's balance sheet as of December 31, 2003?

## EXERCISE 8-6 COMPUTING PENSION EXPENSE

Lorien Company reports the following pension information for 2003:

| | |
|---|---|
| Pension-related interest cost for the year | $ 80,000 |
| Pension fund assets, end of year | 925,000 |
| Pension obligation liability, end of year | 870,000 |
| Pension service cost for the year | 75,000 |
| Return on pension fund assets for the year | 100,000 |

1. What pension amount would Lorien report on its balance sheet as of the end of the year?
2. Compute the amount to be reported on the income statement as pension expense for the year.

## EXERCISE 8-7 PENSION COMPUTATIONS

The following pension information is for three different companies. For each company, compute the missing amount or amounts.

| | Company 1 | Company 2 | Company 3 |
|---|---|---|---|
| Pension fund assets | $100,000 | $75,000 | $ (e) |
| Pension obligation liability | (a) | 80,000 | 100,000 |
| Net pension asset (liability) | 20,000 | (c) | (25,000) |
| Pension-related interest cost | $ 10,000 | (d) | $ 20,000 |
| Service cost | 8,000 | 6,000 | 23,000 |
| Return on pension plan assets | 5,000 | 8,000 | (f) |
| Pension expense | (b) | 10,000 | 35,000 |

## EXERCISE 8-8 ACCOUNTING FOR PROPERTY TAXES

In July 2003, Reynolds Company received a bill from the county government for property taxes on its land and buildings for the period July 1, 2002, through June 30, 2003. The amount of the tax bill is $7,600, and payment is due August 1, 2003. The tax rate will not change for the period July 1, 2003, to June 30, 2004, and the company does not plan to acquire any additional taxable assets during that period. Reynolds Company uses the calendar year for financial reporting purposes.

1. Prepare the journal entries to record payment of the property taxes on August 1, 2003.
2. Prepare the adjusting entry for property taxes on December 31, 2003.

## EXERCISE 8-9 DEFERRED INCOME TAXES

Yosef Company began operating on January 1, 2003. At the end of the first year of operations, Yosef reported $750,000 income before income taxes on its income statement but only $660,000 taxable income on its tax return. This difference arose because $90,000 in income earned during 2003 was not yet taxable according to the income tax regulations. The tax rate is 35%.

1. Compute the amount of income tax that Yosef legally owes for taxable income generated during 2003.
2. Compute the amount of income tax expense to be reported on Yosef's income statement for 2003.
3. State whether Yosef has a deferred income tax asset or a deferred income tax liability as of the end of 2003. What is the amount of the asset or liability?

## EXERCISE 8-10 DEFERRED INCOME TAXES

Boatogooso Company began operating on January 1, 2003. At the end of the first year of operations, Boatogooso reported $500,000 income before income taxes on its income statement but taxable income of $600,000 on its tax return. This difference arose because $100,000 in expenses incurred during 2003 were not yet deductible for income tax purposes according to the income tax regulations. The tax rate is 40%.

1. Compute the amount of income tax that Boatogooso legally owes for taxable income generated during 2003.
2. Compute the amount of income tax expense to be reported on Boatogooso's income statement for 2003.
3. State whether Boatogooso has a deferred income tax asset or a deferred income tax liability as of the end of 2003. What is the amount of the asset or liability?

## EXERCISE 8-11 CONTINGENT LIABILITIES

Rayn Company is involved in the following legal matters:

a. A customer is suing Rayn for allegedly selling a faulty and dangerous product. Rayn's attorneys believe that there is a 40% chance of Rayn's losing the suit.
b. A federal agency has accused Rayn of violating numerous employee safety laws. The company faces significant fines if found guilty. Rayn's attorneys feel that the company has complied with all applicable laws, and they therefore place the probability of incurring the fines at less than 10%.
c. Rayn has been named in a gender discrimination lawsuit. In the past, Rayn has systematically promoted its male employees at a faster rate than it has promoted its female employees. Rayn's attorneys judge the probability that Rayn will lose this lawsuit at more than 90%.

For each item, determine the appropriate accounting treatment.

## EXERCISE 8-12 CLASSIFYING EXPENDITURES AS ASSETS OR EXPENSES

Determining whether an expenditure should be expensed or capitalized is often difficult. Consider each of the following independent situations and indicate whether you would recommend that the cost be expensed or capitalized as an asset. Explain your answer.

1. Splash.com has spent $1.5 million for a 30-second advertisement to be aired during the Super Bowl. The ad introduces the company's new Web-based product, and the company expects the ad to increase sales for at least 18 months.
2. Chromosome.com has spent $8 million on research related to genetic diseases. The company expects this research to lead to substantial revenues, beginning in the next year.
3. Catalog.com is an online catalog sales company. Catalog.com has just spent $5 million designing a targeted advertising campaign that will encourage regular customers of the company's online catalog service to buy new products.
4. Food.com is an online seller of groceries. The company just spent $4 million building a new warehouse. The warehouse is expected to be useful for the next 15 years.

## EXERCISE 8-13

### PREPARING AN INCOME STATEMENT

Willow Company is preparing financial statements for the calendar year 2003. The following totals for each account have been verified as correct:

| | |
|---|---|
| Office Supplies on Hand | $ 300 |
| Insurance Expense | 120 |
| Gross Sales Revenue | 6,000 |
| Cost of Goods Sold | 3,220 |
| Sales Returns | 200 |
| Interest Expense | 100 |
| Accounts Payable | 120 |
| Accounts Receivable | 260 |
| Extraordinary Loss | 1,080 |
| Selling Expenses | 360 |
| Office Supplies Used | 80 |
| Cash | 300 |
| Revenue from Investments | 280 |
| Number of Shares of Capital Stock | 90 |

Prepare an income statement. Assume a 20% income tax rate on both income from operations and extraordinary items. Include EPS numbers.

## EXERCISE 8-14

### UNIFYING CONCEPTS: THE INCOME STATEMENT

Use the following information to prepare an income statement for Fairchild Corporation for the year ended December 31, 2003. You should show separate classifications for revenues, cost of goods sold, gross margin, selling expenses, general and administrative expenses, operating income, other revenues and expenses, income before income taxes, income taxes, and net income. (HINT: Net income is $27,276.)

| | |
|---|---|
| Sales Returns | $ 4,280 |
| Income Taxes | 26,000 |
| Interest Revenue | 2,400 |
| Office Supplies Expense (General and Administrative) | 400 |
| Utilities Expense (General and Administrative) | 3,980 |
| Office Salaries Expense (General and Administrative) | 12,064 |
| Miscellaneous Selling Expenses | 460 |
| Insurance Expense (Selling) | 1,160 |
| Advertising Expense | 6,922 |
| Sales Salaries Expense | 40,088 |
| Sales Discounts | 3,644 |
| Interest Expense | 1,170 |
| Miscellaneous General and Administrative Expenses | 620 |
| Insurance Expense (General and Administrative) | 600 |
| Payroll Tax Expense (General and Administrative) | 3,600 |
| Store Supplies Expense (Selling) | 800 |
| Delivery Expense (Selling) | 2,198 |
| Inventory, January 1, 2003 | 79,400 |
| Sales Revenue | 395,472 |
| Average number of shares of stock outstanding | 10,000 |
| Cost of Goods Sold | 262,610 |
| Purchases | 230,560 |
| Purchases Discounts | 3,050 |
| Inventory, December 31, 2003 | 44,300 |

# problems

## PROBLEM 8-1

### PAYROLL ACCOUNTING

Orange County Bank has three employees, Albert Myers, Juan Moreno, and Michi Endo. During January 2003, these three employees earned $6,000, $4,200, and $4,000, respectively. The following table summarizes the required withholding rates on each individual's income for the month of January:

| Employee | Federal Income Tax Withholdings | State Income Tax Withholdings | FICA Tax |
|---|---|---|---|
| Albert Myers | 33% | 3% | 7.65% |
| Juan Moreno | 28 | 4 | 7.65 |
| Michi Endo | 28 | 5 | 7.65 |

You are also informed that the bank is subject to the following unemployment tax rates on the salaries earned by the employees during January 2003:

| | |
|---|---|
| Federal unemployment tax | 0.8% |
| State unemployment tax | 3.0% |

*Required:*

1. Prepare the journal entry to record salaries payable for the month of January.
2. Prepare the journal entry to record payment of the January salaries to employees.
3. Prepare the journal entry to record the bank's payroll taxes for the month of January.

## PROBLEM 8-2

### DETERMINING PAYROLL COSTS

Orson Nutrition pays its salespeople a base salary of $1,000 per month plus a commission. Each salesperson starts with a commission of 1% of total gross sales for the month. The commission is increased thereafter according to seniority and productivity, up to a maximum of 5%. Orson has five salespeople with gross sales for the month of March and commission rates as follows:

| | Commission Rate | Gross Sales |
|---|---|---|
| JD | 4.5% | $100,000 |
| Derrald | 5.0 | 120,000 |
| Cierra | 2.5 | 80,000 |
| Hannah | 3.0 | 50,000 |
| Skyler | 1.0 | 200,000 |

The FICA tax rate is 7.65%. In addition, state and federal income taxes of 20% are withheld from each employee.

*Required:*

1. Compute Orson's total payroll expense (base salary plus commissions) for the month.
2. Compute the total amount of cash paid to employees for compensation for the month.
3. **Interpretive Question:** Briefly outline the advantages and disadvantages of having *no* income taxes withheld, but instead relying on individual taxpayers to pay the entire amount of their income tax at the end of the year when they file their tax return.

## PROBLEM 8-3

### STOCK OPTIONS

On January 1, 2003, Tiger Man Company established a stock option plan for its senior employees. A total of 400,000 options were granted that permit employees to purchase 400,000

shares of stock at $20 per share. Each option had a fair value of $5 on the grant date. The market price for Tiger Man stock on January 1, 2003, was $20. The employees are required to remain with Tiger Man for three years (2003, 2004, and 2005) in order to be able to exercise these options. Tiger Man's net income for 2003, before including any consideration of compensation expense, is $675,000.

*Required:*

1. Compute the compensation expense associated with these options for 2003 under the fair value method. Note that the period of time that the employees must work to be able to exercise the options is three years.
2. Repeat (1) using the intrinsic value method.
3. Prepare any supplemental disclosures needed if Tiger Man uses the intrinsic value method.
4. **Interpretive Question:** You are a Tiger Man stockholder. What objections might you have to Tiger Man's employee stock option plan?

## PROBLEM 8-4 ACCOUNTING FOR PENSIONS

The following information is available from Haan Company relating to its defined benefit pension plan:

*Balances as of January 1, 2003:*

| | |
|---|---|
| Pension obligation liability | $3,500 |
| Pension fund assets | 3,000 |

*Activity for 2003:*

| | |
|---|---|
| Service cost | $ 400 |
| Contributions to pension fund | 230 |
| Benefit payments to retirees | 170 |
| Return on plan assets | 330 |
| Pension-related interest cost | 280 |

*Required:*

1. Compute the amount of pension expense to be reported on the income statement for 2003.
2. Determine the net pension amount to be reported on the balance sheet at the end of the year. Note: The benefit payments to retirees are made out of the pension fund assets. These payments reduce both the amount in the pension fund and the amount of the remaining pension obligation.
3. **Interpretive Question:** You are an employee of Haan Company and have just received the above information as part of the company's annual report to the employees on the status of the pension plan. Does anything in this information cause you concern? Explain.

## PROBLEM 8-5 ACCOUNTING FOR PENSIONS

Kiev Company reported the following information relating to its pension plan for the years 2001 through 2004:

| | Year-End Obligation | Year-End Plan Assets | Interest Cost | Service Cost | Return on Assets |
|---|---|---|---|---|---|
| 2001 | $522,500 | $469,000 | — | — | — |
| 2002 | 581,250 | 505,050 | $52,250 | $61,500 | $62,750 |
| 2003 | 643,000 | 549,700 | 58,125 | 65,625 | 71,650 |
| 2004 | 681,500 | 615,600 | 64,300 | 37,900 | 68,500 |

*Required:*

1. Compute the amount of pension expense to be reported on the income statement for each of the years 2002 through 2004.
2. Determine the net pension amount to be reported on the balance sheet at the end of each year 2001 through 2004. Clearly indicate whether the amount is an asset or a liability.

3. Each year, the amount of the pension obligation is increased by the interest cost and the service cost. The pension obligation is reduced by the amount of pension benefits paid. Compute the amount of pension benefits paid in each of the years 2002 through 2004.
4. Each year, the amount in the pension fund is increased by contributions to the fund and by the return earned on the fund assets. The pension fund amount is reduced by the amount of pension benefits paid. Compute the amount of contributions to the pension fund in each of the years 2002 through 2004.

## PROBLEM 8-6 LIFE CYCLE OF A DEFERRED TAX ITEM

Black Kitty Company recorded certain revenues of $10,000 and $20,000 on its books in 2001 and 2002, respectively. However, these revenues were not subject to income taxation until 2003. Company records reveal pretax financial accounting income and taxable income for the three-year period as follows:

| | Financial Income | Taxable Income |
|---|---|---|
| 2001 | $44,000 | $34,000 |
| 2002 | 38,000 | 18,000 |
| 2003 | 21,000 | 51,000 |

Assume Black Kitty's tax rate is 40% for all periods.

*Required:*

1. Determine the amount of income tax that will be *paid* each year from 2001 through 2003.
2. Determine the amount of income tax expense that will be reported on the income statement each year from 2001 through 2003.
3. Compute the amount of deferred tax liability that would be reported on the balance sheet at the end of each year.
4. **Interpretive Question:** Why would the IRS allow Black Kitty to defer payment of taxes on some of the revenue earned in 2001 and 2002?

## PROBLEM 8-7 UNIFYING CONCEPTS: THE INCOME STATEMENT

From the following information, prepare an income statement for Notem, Inc., for the year ended December 31, 2003. (HINT: Net income is $119,100.) Assume that there are 10,000 shares of capital stock outstanding.

| | |
|---|---|
| Gross Sales Revenue | $3,625,000 |
| Income Taxes | 140,000 |
| Cost of Goods Sold | 2,415,000 |
| Sales Salaries Expense | 410,000 |
| Rent Expense (Selling) | 16,000 |
| Payroll Tax Expense (Selling) | 3,100 |
| Entertainment Expense (Selling) | 2,000 |
| Miscellaneous Selling Expenses | 7,800 |
| Miscellaneous General and Administrative Expenses | 5,400 |
| Automobile Expense (Selling) | 3,500 |
| Insurance Expense (General and Administrative) | 1,900 |
| Interest Expense | 46,000 |
| Interest Revenue | 3,000 |
| Sales Returns | 10,000 |
| Advertising and Promotion Expense | 199,000 |
| Insurance Expense (Selling) | 17,000 |
| Delivery Expense (Selling) | 3,100 |
| Office Supplies Expense (General and Administrative) | 8,000 |
| Utilities Expense (General and Administrative) | 1,100 |
| Administrative Salaries Expense | 180,000 |
| Fire Loss (net of tax) | 40,000 |

## PROBLEM 8-8

### INCOME STATEMENT ANALYSIS

The following table represents portions of the income statements of Brinkerhoff Company for the years 2001–2003:

| | 2003 | 2002 | 2001 |
|---|---|---|---|
| Gross sales revenue | $42,000 | $ (9) | $25,800 |
| Sales discounts | 0 | 100 | 100 |
| Sales returns | 0 | 200 | 700 |
| Net sales revenue | 42,000 | (10) | (1) |
| Beginning inventory | (15) | 8,000 | (2) |
| Purchases | 24,800 | (11) | 15,000 |
| Purchases discounts | 700 | 300 | 500 |
| Freight-in | (16) | 0 | 500 |
| Cost of goods available for sale | 29,000 | 25,000 | (3) |
| Ending inventory | 3,800 | (12) | (4) |
| Cost of goods sold | (17) | (13) | (5) |
| Gross margin | (18) | 14,000 | (6) |
| Selling expenses | 4,000 | (14) | (7) |
| General and administrative expenses | (19) | 3,200 | 3,000 |
| Income before income taxes | 9,000 | 8,000 | 4,000 |
| Income taxes | 4,500 | 4,000 | (8) |
| Net income | (20) | 4,000 | 2,000 |

*Required:* Fill in the missing numbers. Assume that gross margin is 40% of net sales revenue.

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***• Analyzing 8-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** is included in Appendix A. Locate that annual report and consider the following questions:

1. Find Microsoft's financial statement note on "Income taxes."
   a. Using the current tax information and the information given on income before income taxes, compute Microsoft's 1999 effective tax rate for

both U.S. and international income. The effective tax rate is computed by dividing current taxes by income before income taxes.

b. As of June 30, 1999, Microsoft had $1,709 million in deferred income tax liabilities. What was the source of most of this deferred tax liability?

2. Find Microsoft's financial statement note concerning "employee stock and savings plans."
   a. Briefly describe Microsoft's employee stock purchase plan.
   b. Microsoft also has an employee stock option plan whereby certain key employees are granted incentive stock options that allow them to buy Microsoft stock at a fixed price in the future. If Microsoft's stock price continues to rise, these options could be very valuable. Microsoft is not required to report any expense associated with the granting of these options. However, Microsoft is required to estimate the value of these options and disclose what net income would have been if this value had been recognized as an expense. How much would Microsoft's 1999 net income have decreased if the value of the incentive stock options had been recognized as an expense?

***• Analyzing 8-2 (General Motors)***

**GENERAL MOTORS** has the largest set of private pension plans in the world. The company has many different pension plans covering different groups of employees. The following information was extracted from the notes to GM's 1999 financial statements. All numbers are in millions of U.S. dollars. As you can see, for reporting purposes these plans are separated into U.S. plans and non-U.S. plans.

| | U.S. Plans Pension Benefits | | Non-U.S. Plans Pension Benefits | |
|---|---|---|---|---|
| | 1999 | 1998 | 1999 | 1998 |
| Projected benefit obligation at end of year | $73,269 | $76,963 | $ 9,728 | $10,283 |
| Fair value of plan assets at end of year | 80,462 | 75,007 | 7,062 | 5,976 |
| Funded status | $ 7,193 | $ (1,956) | $(2,666) | $ (4,307) |

1. The projected benefit obligation is the measure of the value of the pension benefits earned by GM's employees that has not yet been paid. What is GM's total projected benefit obligation?
2. To ensure that employees will be able to collect their pension benefits, GM is required by law to set aside funds in a pension plan. What is the total value of assets in all of these pension funds?
3. Why do you think GM is required to separate its disclosure of pension plans into U.S. and non-U.S. plans?

***• Analyzing 8-3 (IBM)***

Note P to **IBM**'s 1999 financial statements describes how taxes affect IBM's operations. Among the information given is the following (all amounts are in millions of U.S. dollars):

| | 1999 | 1998 | 1997 |
|---|---|---|---|
| Earnings before income taxes: | | | |
| U.S. operations | $ 5,892 | $2,960 | $3,193 |
| Non-U.S. operations | 5,865 | 6,080 | 5,834 |
| Total earnings before income taxes | $11,757 | $9,040 | $9,027 |
| Provision for income taxes: | | | |
| U.S. operations | $ 2,005 | $ 991 | $ 974 |
| Non-U.S. operations | 2,040 | 1,721 | 1,960 |
| Total income taxes | $ 4,045 | $2,712 | $2,934 |
| Total other taxes (Social Security, real estate, personal property, and other taxes) | $ 2,831 | $2,859 | $2,774 |

1. a. Compute the effective tax rate (income taxes/earnings before income taxes) for both U.S. and non-U.S. operations for 1997, 1998, and 1999.
   b. For each year 1997–1999, compute the percentage of the total tax burden that was made up of income taxes.
2. A deferred tax asset is a tax deduction that has already occurred and has been reported as a financial accounting expense but cannot be used to reduce income taxes until a future year. As of December 31, 1999, IBM reports that it has a deferred tax asset of $3.737 billion related to employee benefits. How would such a deferred tax asset arise?

## INTERNATIONAL CASE

***• Hutchison Whampoa***

In Hong Kong, Li Ka-shing is known as "Superman." Li's personal wealth is estimated to be in excess of $1 billion, and there is a saying in Hong Kong that for every dollar spent, five cents goes into Li's pocket. Li and his family fled from China in 1940 in order to escape the advancing Japanese army. Li dropped out of school at age 13 to support his family by selling plastic trinkets on the streets of Hong Kong. Later, he scraped together enough money to buy a company that produced plastic flowers. His big success came when he bought the real estate surrounding his factory and watched the land skyrocket in value. Today, Li continues his simple lifestyle even though the companies he controls comprise over 10% of the value of the Hong Kong stock market. When asked why his sons have much nicer houses and cars than he does, Li responded, "My sons have a rich father; I did not."

Li is chairman of **HUTCHISON WHAMPOA LIMITED**. Hutchison has five major business segments: property development, container port operations, retailing, telecommunications, and energy. In 1999, Hutchison Whampoa reported net income of HK$118.735 billion (equivalent to approximately US$15.3 billion).

1. Assume that one of Hutchison Whampoa's overseas subsidiaries earns income of $1,000. The income tax rate in Hong Kong is 15%. When this income of $1,000 is transferred to the parent company in Hong Kong, it will be taxed, but no income tax is owed until then. What journal entry should Hutchison Whampoa make to record the income tax consequences of this $1,000 in income?

2. In 1999, Hutchison Whampoa reported earnings per share of HK$30.28. How many shares were outstanding during the year? (*Note:* See the net income information given above.)
3. Hutchison Whampoa reports that it records as assets the costs it incurs to sign up new subscribers to its cellular phone service network. These signup costs are then systematically transferred to expense over the following three years. What is the theoretical justification for this accounting practice?

## ETHICS CASE

***• Twisting the Contingency Rules to Save the Environment***

You are a member of an environmental group that is working to clean up Valley River, which runs through your town. Right now, the group is focusing on forcing Allied Industrial, a manufacturer with a large plant located on the river, to conduct its operations in a more environmentally friendly way.

The leader of your group, Frank Bowers, is a political science major at the local university. Frank discovers that Allied Industrial is involved in ongoing litigation with respect to toxic waste cleanup at 13 factory sites in other states. Frank is shocked to learn that Allied itself estimates that the total cost to clean up the toxic waste at these 13 sites could be as much as $140 million yet has not reported any liability on its balance sheet. Frank found this information buried in the notes to Allied Industrial's financial statements.

Frank is convinced that he has found a public relations tool that can be used to force Allied Industrial to clean up Valley River. He has called a press conference and plans to accuse Allied of covering up its $140 million obligation to clean up the toxic waste at the 13 sites. His primary piece of evidence is the fact that the $140 million obligation is not mentioned anywhere in Allied's primary financial statements.

You have taken a class in accounting and are somewhat troubled by Frank's interpretation of Allied's financial statement disclosures. You look at Allied's annual report and see that it does give complete disclosure about the possible obligation although it does not report the $140 million as a liability. The report also states that, in the opinion of its legal counsel, it is possible but not probable that Allied will be found liable for the $140 million toxic waste cleanup cost.

The press conference is scheduled for 3 P.M. What should you do?

## WRITING ASSIGNMENT

***• Computing the Total Compensation for a Professor***

Eunice Burns is a new assistant professor of phrenology at the University of Winnemucca. Her academic year salary is $30,000. In addition, she receives a summer salary equal to two-ninths (approximately 22%) of her academic year salary. The university agrees to contribute an amount equal to 7% of Eunice's academic year salary to a pension fund. Eunice acquires legal title to these pension contributions only if she stays at the university for five years or more. Historically, approximately 60% of new assistant professors have remained with the university at least five years. The university withholds $840 per year from Eunice's salary as her contribution to medical coverage. It costs the university $3,000 per year per employee for medical coverage. Eunice has a term-life insurance policy through the university because of the favorable group rate she can get. The $300 annual cost is withheld from her salary. If she were to get the same insurance on her own, it would cost $450. The FICA tax rate is 7.65%.

This amount is withheld from Eunice's pay, and in addition, the university must match this amount and pay it to the federal government. Federal income taxes totaling 15% of income are withheld from Eunice's pay. Both the FICA tax and the federal income tax withholding are applied only to Eunice's academic year salary; no amounts are withheld from her summer salary.

You have just been hired as an assistant to the chief financial officer of the university. You have been asked to compute the total cost to the university of having Eunice Burns on the faculty. Write a one-page memo to the chief financial officer of the university outlining your calculations. Be sure to explain any assumptions that you make.

## THE DEBATE

***• Is Research and Development an Asset or an Expense?***

According to U.S. accounting rules (FASB Statement No. 2), all research and development expenditures should be recognized as expenses in the period in which they are incurred. This accounting treatment basically assumes that any expected benefit from the R&D is so uncertain or unpredictable that the R&D benefit should not be recorded as an asset. In contrast, international accounting rules (IAS No. 9) provide for R&D expenditures to be recorded as an asset if the technological feasibility of the research project has been established.

Divide your group into two teams.

- The first team represents the "Expense All R&D!" group. Prepare a two-minute oral presentation supporting the notion that the benefit of R&D activity is so uncertain that no assets should be recorded in conjunction with R&D.
- The second team represents the "R&D is an Asset!" group. Prepare a two-minute oral presentation arguing that the whole point of R&D is to generate future economic benefit. Accordingly, R&D should be recorded as an asset.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignments given in earlier chapters. If you completed those spreadsheets, you have a head start on this one.

This assignment is based on the spreadsheet prepared in part (1) of the spreadsheet assignment for Chapter 7. Review that assignment for a summary of the assumptions made in preparing a forecasted balance sheet and income statement for 2004 for Handyman Company. Using those financial statements, complete the following two independent sensitivity exercises.

1. Handyman is involved in a class-action lawsuit in which a number of customers allege that they injured their thumbs while using hammers purchased at Handyman. These customers are seeking $50 million in compensatory and punitive damages. [Note: All of the numbers in Handyman's financial statements are in millions.] In making the financial statement projections for Handyman for 2004, it has been assumed that losing this lawsuit is possible, but not probable. *Compute* how each of the following quantities would be affected if a loss in this lawsuit becomes probable during 2004:
   a. Debt ratio (total liabilities/total assets) as of the end of 2004.
   b. Return on equity (net income/ending stockholders' equity) for 2004.

2. Ignore the lawsuit described in (1). It is expected that Handyman's total "other operating expenses" will be $217 million in 2004. Of this amount, $20 million is for expected development costs that would be capitalized if Handyman were allowed to use International Accounting Standards. *Compute* how the capitalization of these development costs in 2004 would affect the following quantities. (Note: This is a hypothetical exercise because, as a U.S. company, Handyman is not currently allowed to use International Accounting Standards in preparing its financial statements.)
   a. Debt ratio (total liabilities/total assets) as of the end of 2004.
   b. Return on equity (net income/ending stockholders' equity) for 2004.

## INTERNET SEARCH

***• ExxonMobil***

Access **EXXONMOBIL**'s Web site at **http://www.exxonmobil.com**. Sometimes Web addresses change, so if this ExxonMobil address doesn't work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link to ExxonMobil. Once you've gained access to ExxonMobil's Web site, answer the following questions:

1. Using ExxonMobil's "history" site, determine the original names of the two companies that later became Exxon and Mobil.
2. Review ExxonMobil's note disclosure relating to litigation and other contingencies. What significant legal actions are being taken against the company, and what is their status?
3. Locate ExxonMobil's note relating to income taxes. What is the company's effective tax rate (income tax expense/income before taxes)? How does it compare to the U.S. statutory rate (as of 1999) of 35%?
4. Review ExxonMobil's disclosure relating to its pension plans. Does the amount of funding the company has set aside to satisfy its pension obligation exceed the company's pension obligation?

# comprehensive problem 6-8

Zepplin Enterprises is a small business that purchases electronic personal information managers (PIM) from manufacturers and sells them to consumers. These PIMs keep track of appointments, phone numbers, to-do lists, and the like. Zepplin conducts business via the Internet and, at this point, carries only one model of PIM, the YO-660. Zepplin provides the following trial balance as of January 1, 2003.

**Zepplin Enterprises**
**Trial Balance**
**January 1, 2003**

| | Debits | Credits |
|---|---|---|
| Cash | $ 8,500 | |
| Accounts Receivable | 28,400 | |
| Allowance for Bad Debts | | $ 568 |
| Inventory | 34,855 | |
| Prepaid Rent | 1,500 | |
| Office Supplies | 1,000 | |
| Accounts Payable | | 19,700 |
| Wages Payable | | 3,200 |
| Taxes Payable | | 4,500 |
| Common Stock (10,000 shares) | | 25,000 |
| Retained Earnings | | 21,287 |
| Total | $74,255 | $74,255 |

Zepplin uses the periodic FIFO inventory method in accounting for its inventory. The inventory of YO-660 consists of the following inventory layers:

| Layer | Units | Price per Unit | Total Price |
|---|---|---|---|
| 1 | | | |
| (oldest purchase) | 60 | $150 | $ 9,000 |
| 2 | 70 | 155 | 10,850 |
| 3 | 65 | 157 | 10,205 |
| 4 | | | |
| (most recent purchase) | 30 | 160 | 4,800 |
| Total | 225 | | $34,855 |

Zepplin provides the following additional relevant information:

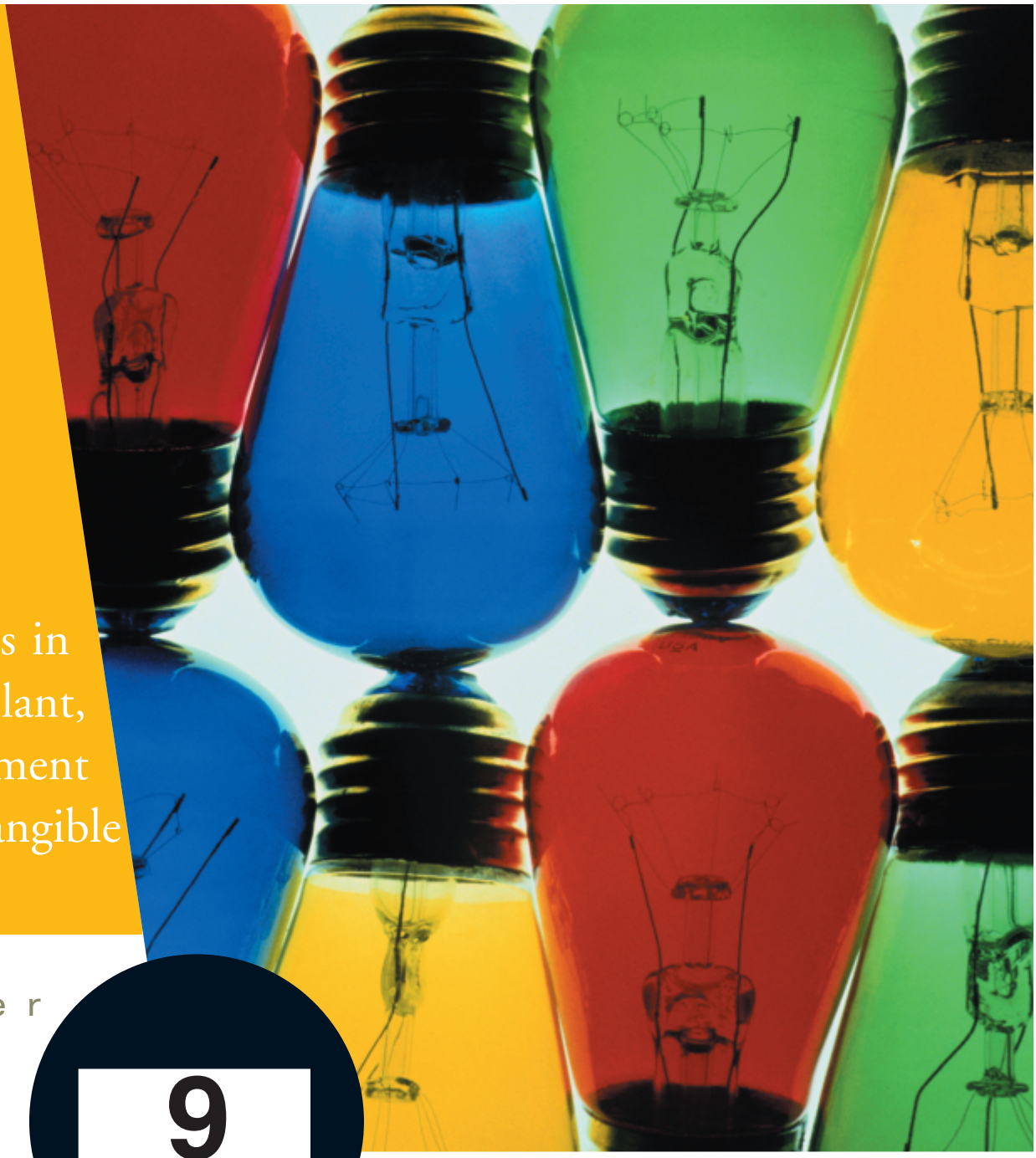
- The company uses the percentage of receivables method in estimating bad debts; 2% of the ending receivables balance is deemed to be uncollectible.
- Zepplin conducts an actual physical count of its inventory and office supplies at the end of each month.
- Zepplin rents its warehouse, office facilities, and computer equipment. Rent on the computer equipment is paid at the beginning of each month. Rent on the warehouse and office space is paid on the 15th of each month.
- Payroll is paid on the 5th and the 20th (pay periods end on the 15th and the last day of the month).
- Taxes Payable represents payroll taxes that are due by the 5th of the following month.
- All sales and all inventory purchases are on account.

The following transactions occurred for Zepplin during January of 2003:

Jan. 1 Paid rent on the computer equipment, $1,800.
5 Recorded sales for the week, 125 units at $220 per unit. (The company uses a periodic inventory system.)
5 Paid wages payable and taxes payable from the prior period.
5 Collected $15,000 from customers on account during the week.
8 Purchased office supplies for cash, $350.
10 Received 50 YO-660s from the manufacturer at a cost of $160 per unit.
11 Paid accounts payable, $17,500.
12 Collected $27,000 from customers on account during the week.
12 Recorded sales for the week, 140 units at $220 per unit.
15 Paid monthly rent for the office and warehouse, $3,000.
15 Received 140 YO-660s from the manufacturer at a cost of $162 per unit.
18 A customer returned a YO-660 and requested a refund. A check was immediately mailed to the customer in the amount of $220.
19 Collected $38,000 from customers on account during the week.
19 Recorded sales for the week, 115 units at $220 per unit.
20 Paid the semimonthly payroll for the pay period ending on January 15. Salaries and wages total $5,300 and payroll taxes were as follows: FICA taxes payable, employee, $405; FICA taxes payable, employer, $405; state withholding taxes payable, $280; federal withholding taxes payable, $810; federal unemployment taxes payable, $50; state unemployment taxes payable, $150.
22 Received notice that a customer owing Zepplin $440 had filed bankruptcy and would be unable to pay.
23 Paid the taxes payable from the payroll on January 20.
24 Received 190 YO-660s from the manufacturer at a cost of $160 per unit.
25 Purchased office supplies for cash, $730.
25 Paid accounts payable, $39,000.
26 Collected $44,500 from customers on account during the week.
26 Recorded sales for the week, 135 units at $225 per unit.
29 Customers returned 5 YO-660s and requested refunds. Checks were immediately mailed to each customer in the amount of $220 each.
30 Received 130 YO-660s from the manufacturer at a cost of $160 per unit.
31 Collected $21,800 from customers on account.
31 Recorded sales for the partial week, 65 units at $225 per unit.
31 Accrued the semimonthly payroll for the pay period ending on January 31. Salaries and wages total $5,400 and payroll taxes were as follows: FICA taxes payable, employee, $410; FICA taxes payable, employer, $410; state withholding taxes payable, $285; federal withholding taxes payable, $820; federal unemployment taxes payable, $55; state unemployment taxes payable, $160.

*Required:*

1. Provide the required journal entries to record each of the above events.
2. Make the adjusting entries necessary to (1) record bad debt expense for the period and (2) to adjust inventory and office supplies. A count of inventory and office supplies revealed 160 YO-660s on hand and supplies valued at $800.
3. Prepare a trial balance as of January 31, 2003.
4. Prepare an income statement and a balance sheet for Zepplin Enterprises.
5. Prepare a common-size income statement for Zepplin Enterprises.
6. Compute Zepplin's number of days' sales in inventory, number of days' sales in accounts receivable, and number of days' sales in accounts payable ratios. What can you conclude about the company's liquidity position based on this analysis?



# Investments in Property, Plant, and Equipment and in Intangible Assets

chapter

9

## learning objectives

After studying this chapter, you should be able to:

1. Identify the two major categories of long-term operating assets: property, plant, and equipment and intangible assets.
2. Understand the factors important in deciding whether to acquire a long-term operating asset.
3. Record the acquisition of property, plant, and equipment through a simple purchase as well as through a lease, by self-construction, and as part of the purchase of several assets at once.
4. Compute straight-line and units-of-production depreciation expense for plant and equipment.
5. Account for repairs and improvements of property, plant, and equipment.
6. Identify whether a long-term operating asset has suffered a decline in value and record the decline.
7. Record the discarding and selling of property, plant, and equipment.
8. Account for the acquisition and amortization of intangible assets and understand the special difficulties associated with accounting for intangibles.
9. Use the fixed asset turnover ratio as a measure of how efficiently a company is using its property, plant, and equipment.

expanded material

10. Compute declining-balance and sum-of-the-years - digits depreciation expense for plant and equipment.
11. Account for changes in depreciation estimates.

Thomas Edison received $300,000 in investment funds in 1878 in order to start his **EDISON ELECTRIC LIGHT COMPANY**. Today, **GENERAL ELECTRIC** is the direct descendant of Edison s company and, with a market value of $583 billion (as of October 2000), is the most valuable company in the world. General Electric has been a fixture in corporate America since the late 1800s and is the only one of the 12 companies in the original Dow Jones Industrial Average that is still included among the 30 companies making up the Dow today.[1]

The stated purpose of the creation of the Edison Electric Light Company was the development of an economically practical electric light bulb. After a year of experimentation, Thomas Edison discovered that carbonized bamboo would provide a long-lasting light filament that was also easy to produce. Edison quickly found that delivering electric light to people s homes required more than a light bulb, however. So, he developed an entire electricity generation and distribution system, inventing new pieces of equipment when he couldn t find what he needed. The first public electric light system was built in London, followed soon after by the Pearl Street Station system in New York City in 1882. In 1892, Edison s company merged with the **THOMSON-HOUSTON ELECTRIC COMPANY** (developer of alternating-current [AC] equipment that could transmit over longer distances than Edison s direct-current [DC] system), and the General Electric Company (GE) was born.

From the beginning, General Electric s strength has been research. In addition to improving the design of the light bulb (including the development in the early 1900s of gas-filled, tungsten-filament bulbs that are the model for bulbs still used today), GE was also instrumental in developing almost every familiar household appliance the iron, washing machine, refrigerator, range, air conditioner, dishwasher, and more. In addition, GE research scientists helped create FM radio, aircraft jet engines, and nuclear-power reactors.

Today, General Electric operates in a diverse array of businesses, ranging from train locomotives to medical CT scanners to consumer financing to the NBC television network. When Jack Welch became CEO of GE in 1981, his goal was to make GE number one or number two in each market segment in which it operates, or else get out of that particular line of business. This strategy has enabled GE s success to continue its market value has grown by an average of 25% per year over the past 19 years.

To support its broad array of businesses, General Electric maintains a vast quantity of long-term assets that cost over $101 billion to acquire. In 1999 alone, GE spent an additional $15.5 billion in acquiring long-term operating assets and received $6.3 billion for disposing of old assets. Its long-term assets include $3.3 billion in rail cars, $6.7 billion in buildings, $20.8 billion in machinery, and $26.0 billion in intangible assets.

setting the stage

*In Chapters 6 through 8, operating activities of a business and the assets and liabilities arising from those operations were discussed. In this and the next three chapters, investing and financing activities are covered. In this chapter, investments in long-term assets that are used in the business, such as buildings, property, land, and equipment, are discussed. In Chapter 10, long-term debt financing is covered. In Chapter 11, equity financing is discussed. Once you understand debt and equity securities, as discussed in Chapters 10 and 11, you will understand how these same securities can be purchased as investments. Therefore, in Chapter 12, investments in stocks and bonds (securities) of other companies are discussed. Exhibit 9-1 shows the balance sheet and income statement accounts as well as the cash flow items that will be covered in this chapter.*

*The two primary categories of long-term assets discussed in this chapter are (1) property, plant, and equipment and (2) intangible assets. Because property, plant, and equipment and intangible assets are essential to a business in carrying out its operating activities, they are sometimes called*

1 This description is based on General Electric Company History at **http://ge.com/ibhis0.htm**; General Electric Company, *International Directory of Company Histories*, vol. 12 (Detroit: St. James Press, 1996), pp. 193 197; 1999 Annual Report of the General Electric Company.

**long-term operating assets** Assets expected to be held and used over the course of several years to facilitate operating activities.

***long-term operating assets.*** *Unlike inventories, these long-term operating assets are not acquired for resale to customers but are held and used by a business to generate revenues. As illustrated by the numbers given for* ***GENERAL ELECTRIC*** *at the beginning of the chapter, long-term operating assets often comprise a significant portion of the total assets of a company.*

## 1

Identify the two major categories of long-term operating assets: property, plant, and equipment and intangible assets.

## NATURE OF LONG-TERM OPERATING ASSETS

Businesses make money by selling products and services. A company needs an infrastructure of long-term operating assets in order to profitably produce and distribute these products and services. For example, **GENERAL ELECTRIC** needs factories in which to manufacture the locomotives and light bulbs that it sells. GE also needs patents on its unique technology to protect its competitive edge in the marketplace. A factory is an example of a long-term operating asset that is classified as property, plant, and equipment. A patent is an example of an intangible asset. **Property, plant, and equipment** refers to tangible, long-lived assets acquired for use in business operations. This category includes land, buildings, machinery, equipment, and furniture. **Intangible assets** are long-lived assets that are used in the operation of a business but do not have physical substance. In most cases, they provide their owners with competitive advantages over other firms. Typical intangible assets are patents, licenses, franchises, and goodwill. The time line in Exhibit 9-2 illustrates the important business issues associated with long-term operating assets.

**property, plant, and equipment** Tangible, long-lived assets acquired for use in business operations; include land, buildings, machinery, equipment, and furniture.

**intangible assets** Long-lived assets without physical substance that are used in business, such as licenses, patents, franchises, and goodwill.

The following section outlines the process used in deciding whether to acquire a long-term operating asset. The subsequent sections discuss the accounting issues that arise when a long-term operating asset is acquired: accounting for the acquisition of the asset, recording periodic depreciation, accounting for new costs and changes in asset value, and properly removing the asset from the books upon disposition.

**exhibit 9-1** Financial Statement Items Covered in This Chapter

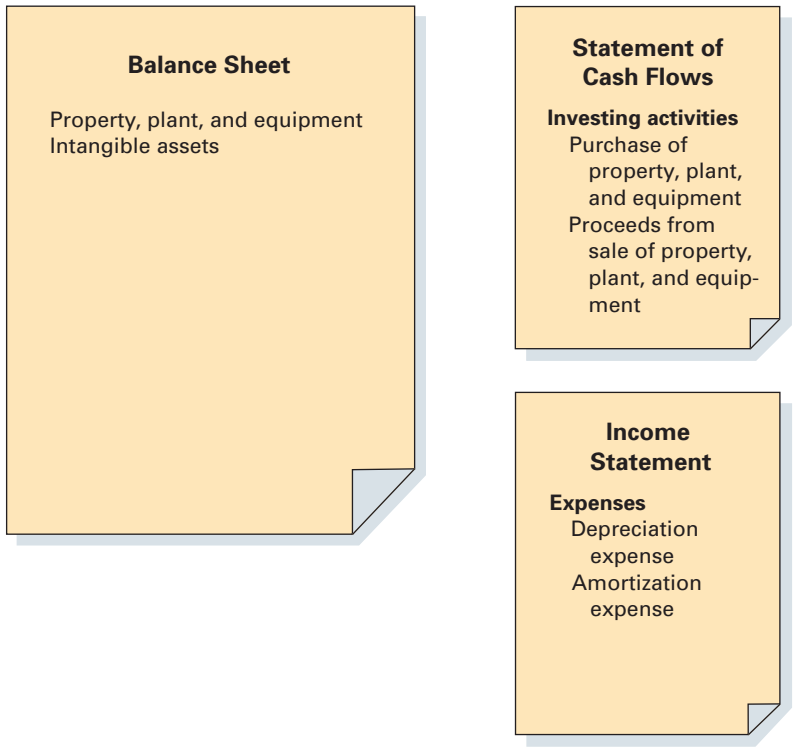
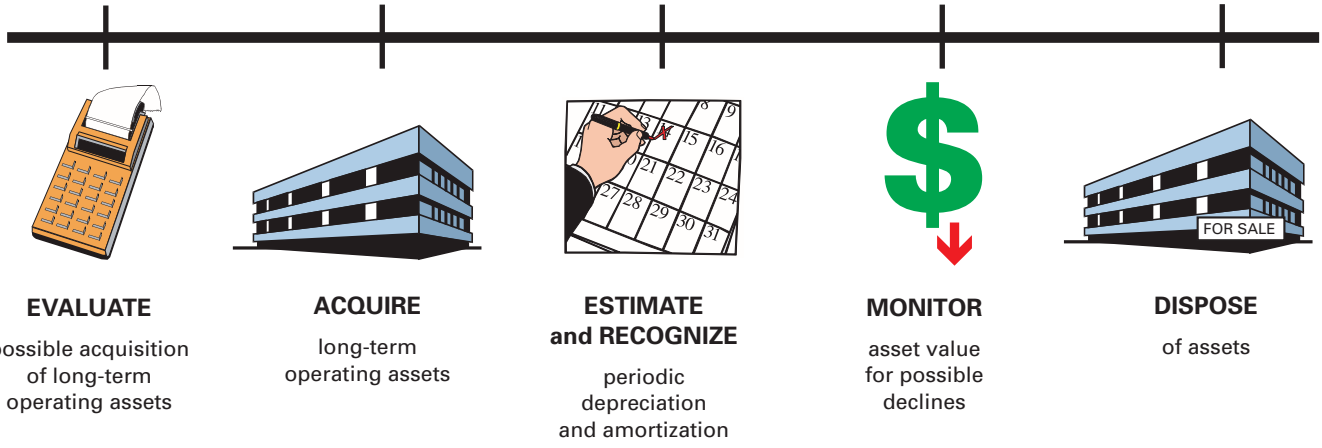


exhibit 9-2 Time Line of Business Issues Involved with Long-Term Operating Assets




## to summarize

Long-term operating assets provide an infrastructure in which to conduct operating activities. The category of property, plant, and equipment refers to tangible, long-lived assets such as land and equipment. Examples of intangible assets are patents and licenses.

**2**

Understand the factors important in deciding whether to acquire a long-term operating asset.

## DECIDING WHETHER TO ACQUIRE A LONG-TERM OPERATING ASSET

**capital budgeting** Systematic planning for long-term investments in operating assets.

As mentioned in the previous section, long-term operating assets are acquired to be used over the course of several years. The decision to acquire a long-term asset depends on whether the future cash flows generated by the asset are expected to be large enough to justify the asset cost. The process of evaluating a long-term project is called **capital budgeting**. This process is briefly introduced here and is covered in more detail in Chapter 9 in the management accounting section of this book.

Assume that Yosef Manufacturing makes joysticks and other computer game accessories. Yosef is considering expanding its operations by buying an additional production facility. The cost of the new factory is $100 million. Yosef expects to be able to sell the joysticks and other items made in the factory for $80 million per year. At that level of production, the annual cost of operating the factory (wages, insurance, materials, maintenance, etc.) is expected to total $65 million. The factory is expected to remain in operation for 20 years. Should Yosef buy the new factory for $100 million?

To summarize the information in the preceding paragraph, Yosef must decide whether to pay $100 million for a factory that will generate a net profit of $15 million ($80 million − $65 million) per year for 20 years. At first glance, you might think that the decision is obvious because the factory costs only $100 million but will generate $300 million in profit ($15 million × 20 years) during its 20-year life. But this analysis ignores the important fact that dollars received far in the future are not worth as much as dollars received right now. For example, if you can invest your money and earn 10%, receiving $1 today is the same as receiving $6.73 20 years from now because the $1 received today could be invested and would grow to $6.73 in 20 years. This important concept is called the **time value of money** and is essential to properly evaluating whether to acquire any long-term asset.

**time value of money** The concept that a dollar received now is worth more than a dollar received far in the future.

Using the time value of money calculations that will be explained in detail in Chapter 10, it can be shown that receiving the future cash flows from the factory of $15 million per year for 20 years is the same as receiving $128 million in one lump sum right now, if the prevailing interest rate is 10%. Thus, the decision to acquire the factory boils down to the following comparison: Should we pay $100 million to buy a factory now if the factory will generate future cash flows that are worth the equivalent of $128 million now? The decision is yes, because the $128 million value of the expected cash inflows is greater than the $100 million cost of the factory. On the other hand, if the factory were expected to generate only $10 million per year, then, using the computations that will be explained in Chapter 10, it can be calculated that the value of the cash flows would be only $85 million, and the factory should not be purchased for $100 million.

The important concept to remember here is that long-term operating assets have value because they are expected to help a company generate cash flows in the future. If events occur that change the expectation concerning those future cash flows, then the value of the asset changes. For example, if consumer demand for computer joysticks dries up, the value of a factory built to produce joysticks can plunge overnight even though the factory itself is still as productive as it ever was. Accounting for this type of decline in the value of a long-term operating asset is discussed later in the chapter.

## to summarize

Long-term operating assets have value because they help companies generate future cash flows. The decision to acquire a long-term operating asset involves comparing the cost of the asset to the value of the expected cash inflows, after adjusting for the time value of money. An asset s value can decline or disappear if events cause a decrease in the expected future cash flows generated by the asset.

**3**

Record the acquisition of property, plant, and equipment through a simple purchase as well as through a lease, by self-construction, and as part of the purchase of several assets at once.

## ACCOUNTING FOR ACQUISITION OF PROPERTY, PLANT, AND EQUIPMENT

Like all other assets, property, plant, and equipment are initially recorded at cost. The cost of an asset includes not only the purchase price but also any other costs incurred in acquiring the asset and getting it ready for its intended use. Examples of these other costs include shipping, installation, and sales taxes. The items that should be included in the acquisition cost of various types of property, plant, and equipment are outlined in Exhibit 9-3.

**exhibit 9-3** Items Included in the Acquisition Cost of Property, Plant, and Equipment

| | |
|---|---|
| Land | Purchase price, commissions, legal fees, escrow fees, surveying fees, clearing and grading costs. |
| Land improvements (e.g., landscaping, paving, fencing) | Cost of improvements, including expenditures for materials, labor, and overhead. |
| Buildings | Purchase price, commissions, reconditioning costs. |
| Equipment | Purchase price, taxes, freight, insurance, installation, and any expenditures incurred in preparing the asset for its intended use, e.g., reconditioning and testing costs. |

Property, plant, and equipment are usually acquired by purchase. In some cases, assets are acquired by leasing but are accounted for as assets in much the same way as purchased assets. Plant and equipment can also be constructed by a business for its own use. Also, a company can in one transaction purchase several different assets or even another entire company. The accounting for each of these types of acquisition is explained below.

## Assets Acquired by Purchase

A company can purchase an asset by paying cash, incurring a liability, exchanging another asset, or by a combination of these methods. If a single asset is purchased for cash, the accounting is relatively simple. To illustrate, we assume that Wheeler Resorts, Inc., purchases a new delivery truck for $15,096 (purchase price, $15,000, less 2% discount for paying cash, plus sales tax of $396). The entry to record this purchase is:

| | | |
|---|---|---|
| Delivery Truck | 15,096 | |
| Cash | | 15,096 |
| *Purchased a delivery truck for $15,096 ($15,000 − $300 cash discount + $396 sales tax).* | | |

In this instance, cash was paid for a single asset, the truck. An alternative would be to borrow part of the purchase price. If the company had borrowed $12,000 of the $15,096 from a bank, the entry would have been:

| | | |
|---|---|---|
| Delivery Truck | 15,096 | |
| Cash | | 3,096 |
| Notes Payable | | 12,000 |
| *Purchased a delivery truck for $15,096; paid $3,096 cash and issued a note for $12,000 to Chemical Bank.* | | |

The $12,000 represents the principal of the note; it does not include any interest charged by the lending institution. (The interest is recognized later as interest expense.)

When one long-term operating asset is acquired in exchange for another, the cost of the new asset is usually set equal to the market value of the asset given up in exchange.

## Assets Acquired by Leasing

**lease** A contract that specifies the terms under which the owner of an asset (the lessor) agrees to transfer the right to use the asset to another party (the lessee).

**lessee** The party that is granted the right to use property under the terms of a lease.

**lessor** The owner of property that is leased (rented) to another party.

**operating lease** A simple rental agreement.

**Leases** are often short-term rental agreements in which one party, the **lessee**, is granted the right to use property owned by another party, the **lessor**. For example, as a student, you may decide to lease (rent) an apartment to live in while you are attending college. The owner of the apartment (lessor) will probably require you to sign a lease specifying the terms of the arrangement. The lease states the period of time in which you will live in the apartment, the amount of rent you will pay, and when each rent payment is due. When the lease expires, you will either sign a new lease or move out of the apartment, which would then be rented to someone else.

Companies enter into similar types of lease arrangements. For example, Wheeler Resorts might decide to lease a building because it needs additional office space. Assume Wheeler signs a two-year lease requiring monthly rental payments of $1,000. When the lease expires, Wheeler will either move out of the building or negotiate a new lease with the owner. Accounting for this type of rental agreement, called an **operating lease**, is straightforward. When rent is paid each month, Wheeler records the following journal entry:

| | | |
|---|---|---|
| Rent (or Lease) Expense | 1,000 | |
| Cash | | 1,000 |
| *To record monthly rent of office building.* | | |

A college student (lessee) often rents an apartment while attending college. The apartment owner (lessor) will require the student to sign a lease stating the terms of the arrangement.

Some lease agreements, however, are not so simple. Suppose Wheeler has decided to expand its operations and wants to acquire a hotel in the Phoenix, Arizona area. Wheeler s alternatives are to buy land and build a new hotel, purchase an existing hotel, or lease a hotel. Assume Wheeler locates a desirable piece of land, and the owner of the land agrees to build a hotel and lease the property to Wheeler. The lease agreement is noncancelable and requires Wheeler to make annual lease payments of $100,000 for 20 years. At the end of 20 years, Wheeler will become the owner of the property. Clearly, this is not a simple rental agreement, even though the transaction is called a lease by the parties involved. In reality, this transaction is a purchase of the property with the payments being spread over 20 years. The result is the same as if Wheeler had borrowed money on a 20-year mortgage and purchased the property.

Generally accepted accounting principles require that the recording of a transaction reflect its true economic nature, not its form. Instead of recognizing the individual lease payments as an expense as was done with the operating lease, Wheeler records the property as an asset and also records a liability reflecting the obligation to the lessor. The amount to be recorded is the cash amount that Wheeler would have to pay right now in order to completely pay off the obligation to make the future lease payments. This amount is called the present value of the lease payments (in the Wheeler example, the present value of 20 annual payments of $100,000) and takes into account the time value of money. As mentioned earlier, the time value concept will be explained in more detail in Chapter 10.

Continuing the example, assume that, at the beginning of the lease term, the present value of the future lease payments is $851,360. Wheeler makes the following journal entry to record the lease:

| | | |
|---|---|---|
| Leased Property | 851,360 | |
| Lease Liability | | 851,360 |
| *To record hotel acquired under a 20-year noncancelable lease.* | | |

**capital lease** A leasing transaction that is recorded as a purchase by the lessee.

This type of lease is called a **capital lease** because the lessee records (capitalizes) the leased asset the same as if the asset had been acquired in an outright purchase. The asset is reported with Property, Plant, and Equipment on the lessee s balance sheet. The lessee (Wheeler Resorts) also shows the lease liability on the balance sheet as a long-term liability.

When annual lease payments are made, Wheeler will not record the payment as rent expense. Instead, the payment will be recorded as a reduction in the lease liability, with part of each payment being interest on the outstanding obligation. The difference between the total lease payments (20 years × $100,000, or $2 million) and the cost or present value of the property is the amount of interest that will be paid over the term of the lease. To illustrate, assume that the first payment is made one year after the lease term begins and includes interest of $85,136 and a $14,864 reduction in the liability. The payment is recorded as follows:

| | | |
|---|---|---|
| Lease Liability | 14,864 | |
| Interest Expense | 85,136 | |
| Cash | | 100,000 |
| *To record annual lease payment under capital lease.* | | |

Accounting for payments on capital leases is discussed in more detail in Chapter 10.

**CLASSIFYING LEASES** As illustrated, an operating lease is accounted for as a simple rental, whereas a capital lease is accounted for as a purchase of the leased asset. Because the accounting treatment of a lease can have a major impact on the financial statements, the accounting profession has established criteria for determining whether a lease should be classified as an operating or a capital lease. If a lease is noncancelable and meets any one of the following four criteria, it is recorded as a capital lease:

1. The lease transfers ownership of the leased asset to the lessee by the end of the lease term (as in the Wheeler Resorts example).
2. The lease contains an option allowing the lessee to purchase the asset at the end of the lease term at a bargain price, essentially guaranteeing that ownership will eventually transfer to the lessee.
3. The lease term is equal to 75% or more of the estimated economic life of the asset, meaning that the lessee will use the asset for most of its economic life.
4. The present value of the lease payments at the beginning of the lease is 90% or more of the fair market value of the leased asset. Meeting this criterion means that, in agreeing to make the lease payments, the lessee is agreeing to pay almost as much as the cash price to purchase the asset outright.

If just one of the above criteria is met, then the lease agreement is classified as a capital lease and is accounted for by the lessee as a debt-financed purchase. A lease that does not meet any of the capital lease criteria is considered an operating lease. Keep in mind that these two types of leases are not alternatives for the same transaction. If the terms of the lease agreement meet any one of the capital lease criteria, the lease must be accounted for as a capital lease.

The accounting for leases has been a thorn in the side of accounting standard-setters for at least 50 years. From the beginning, the crucial issue has been how to require companies to report leased assets and lease liabilities in the balance sheet when a lease constitutes an effective transfer of ownership. The four lease criteria outlined above were issued by the FASB in 1976, with the thought that the rigidity and strictness of the criteria would result in most leases being reported on lessee companies balance sheets as capital leases. In practice, U.S. companies have taken these four criteria as a challenge and have carefully crafted their lease agreements so that none of the criteria is satisfied, allowing the leases to continue to be accounted for as operating leases.

One of the largest leasing companies in the United States is a subsidiary of **GENERAL ELECTRIC** called **GE CAPITAL SERVICES**. GE Capital Services leases industrial equipment, factory buildings, rail cars, shipping containers, computers, medical equip-

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One of the most interesting accounting manipulations involving the four lease criteria relates to the 90% threshold for the present value of the minimum lease payments. By hiring an insurance company to guarantee a portion of the lease payments, a lessee is able to exclude these payments from the present value computations, lowering the present value below the 90% threshold.

business environment essay

**Lease or Buy?** Leasing is an integral part of American business. From its beginning, a major aspect of **IBM** s business has been the leasing, rather than the outright sale, of its equipment. Over the years, Ray Kroc s **MCDONALD S** empire has made more money leasing land and buildings to franchisees than it has made selling hamburgers. In short, leasing has long been a popular method of acquiring and financing operating assets. For example, airlines such as **AMERICAN**, **DELTA**, **SOUTHWEST**, and **UNITED** often lease many of their airplanes. Retail chains such as **WAL-MART** and **SAFEWAY** often lease their stores.

Virtually any type of operating asset can be acquired by leasing. Companies often lease such assets as rail cars, automobiles and trucks, airplanes, and various other types of equipment, as well as real estate. There are several reasons why a company might choose to lease rather than purchase an asset. A purchase transaction often requires a significant cash outlay in the form of a down payment at the date of purchase; leasing, therefore, can be used to minimize the amount of

ment, and more. In 1999, the total original cost of assets leased by GE Capital Services to other companies was $31.0 billion.

## Assets Acquired by Self-Construction

Sometimes buildings or equipment are constructed by a company for its own use. This may be done to save on construction costs, to utilize idle facilities or idle workers, or to meet a special set of technical specifications. Self-constructed assets, like purchased assets, are recorded at cost, including all expenditures incurred to build the asset and make it ready for its intended use. These costs include the materials used to build the asset, the construction labor, and some reasonable share of the general company overhead (electricity, insurance, supervisors salaries, etc.) during the time of construction.

Another cost that is included in the cost of a self-constructed asset is the interest cost associated with money borrowed to finance the construction project. Just as the cost to rent a crane to be used to construct a building would be included in the cost of the building, the cost to rent money to finance the construction project should also be included in the building cost. Interest that is recorded as part of the cost of a self-constructed asset is called **capitalized interest**. The amount of interest that should be capitalized is that amount that could have been saved if the money used on the construction project had instead been used to repay loans.

**capitalized interest** Interest that is recorded as part of the cost of a self-constructed asset.

The following illustration demonstrates the computation of the cost of a self-constructed asset. Wheeler Resorts decided to construct a new hotel using its own workers. The construction project lasted from January 1 to December 31, 2000. Building materials costs for the project were $4,500,000. Total labor costs attributable to the project were $2,500,000. Total company overhead (costs other than materials and labor) for the year was $10,000,000; of this amount, it is determined that 15% can be reasonably assigned as part of the cost of the construction project. A construction loan was negotiated with Wheeler s bank; during the year, Wheeler was able to borrow from the bank to pay for materials, labor, etc. The total amount of interest paid on this construction loan during the year was $500,000. The total cost of the self-constructed hotel is computed as follows:

| | |
|---|---|
| Materials | $4,500,000 |
| Labor | 2,500,000 |
| Overhead allocation ($10,000,000 × 0.15) | 1,500,000 |
| Capitalized interest | 500,000 |
| Total hotel cost | $9,000,000 |

cash paid initially to acquire the asset. For some types of assets, such as computers, leasing enables the lessee to avoid risks of obsolescence if the appropriate terms are written into the lease agreement.

Another potential advantage of leasing is that if the agreement can be recorded as an operating lease, the lessee does not have to report any related liability. This is an important consideration if a company is concerned about the effect of reporting additional debt on the balance sheet. Before criteria were established for classifying leases as operating or capital, almost all leases were treated as operating leases. Often the primary purpose of a leasing arrangement was to acquire an asset without reporting any related liability. Some companies are still using leasing for this purpose. They do so by writing the terms of a lease agreement in a manner that circumvents the generally accepted accounting capitalization criteria. The result is that some leasing transactions are reported as simple rental agreements (operating leases) when in fact they have many characteristics of a purchase transaction. Leasing and other forms of off-balance-sheet financing are of major concern to the accounting profession and financial statement users.

What is the difference between capitalized interest and regular interest?

The new hotel would be reported in Wheeler s balance sheet at a total cost of $9,000,000. As with other long-term operating assets, self-constructed assets are reported at the total cost necessary to get them ready for their intended use.

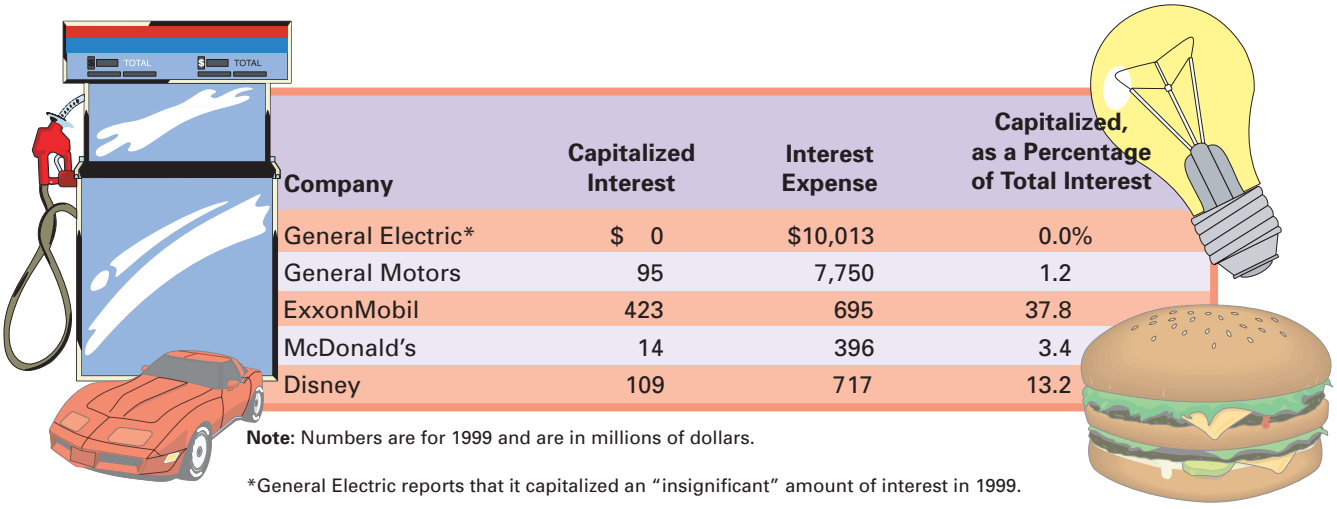
The amount of capitalized interest reported by several large U.S. companies, relative to their total interest expense, is displayed in Exhibit 9-4. As you can see, General Electric capitalized only an insignificant amount of its $10.013 billion in interest during 1999. On the other hand, **EXXONMOBIL** capitalized more than one-third of its interest during 1999.

## Acquisition of Several Assets at Once

**basket purchase** The purchase of two or more assets acquired together at a single price.

A **basket purchase** occurs when two or more assets are acquired together at a single price. A typical basket purchase is the purchase of a building along with the land on which the building sits. Because there are differences in the accounting for land and buildings, the purchase price

**exhibit 9-4** Magnitude of Capitalized Interest for Several Large U.S. Companies




| Company | Capitalized Interest | Interest Expense | Capitalized, as a Percentage of Total Interest |
|---|---|---|---|
| General Electric* | $ 0 | $10,013 | 0.0% |
| General Motors | 95 | 7,750 | 1.2 |
| ExxonMobil | 423 | 695 | 37.8 |
| McDonald's | 14 | 396 | 3.4 |
| Disney | 109 | 717 | 13.2 |

**Note:** Numbers are for 1999 and are in millions of dollars.

*General Electric reports that it capitalized an "insignificant" amount of interest in 1999.

must be allocated between the two assets on some reasonable basis. The relative fair market values of the assets are usually used to determine the respective costs to be assigned to the land and the building.

To illustrate, we will assume that Wheeler Resorts purchases a 40,000-square-foot building on 2.6 acres of land for $3,600,000. How much of the total cost should be assigned to the land and how much to the building? If an appraisal indicates that the fair market values of the land and the building are $1,000,000 and $3,000,000, respectively, the resulting allocated costs would be $900,000 and $2,700,000, calculated as follows:

| Asset | Fair Market Value | Percentage of Total Value | Apportionment of Lump-Sum Cost |
|---|---|---|---|
| Land | $1,000,000 | 25% | 0.25 × $3,600,000 = $ 900,000 |
| Building | 3,000,000 | 75 | 0.75 × $3,600,000 = 2,700,000 |
| Total | $4,000,000 | 100% | $3,600,000 |

In this case, the fair market value of the land is $1,000,000, or 25% of the total market value of the land and building. Therefore, 25% of the actual cost, or $900,000, is allocated to the land, and 75% of the actual cost, or $2,700,000, is allocated to the building. The journal entry to record this basket purchase is:

| | | |
|---|---|---|
| Land | 900,000 | |
| Building | 2,700,000 | |
| Cash | | 3,600,000 |
| *Purchased 2.6 acres of land and a 40,000-square-foot building.* | | |

If part of the purchase price is financed by a bank, an additional credit to Notes Payable or Mortgage Payable would be included in the entry.

Sometimes one company will buy all the assets of another company. For example, in its 1999 annual report, General Electric discloses that its financing subsidiary, GE Capital Services, acquired **JAPAN LEASING**, which leases fleets of automobiles to Japanese corporations. Similarly, in its 1999 annual report (included in Appendix A), **MICROSOFT** discloses that, in November 1998, it purchased **LINKEXCHANGE** for $265 million. The purchase of an entire company raises a number of accounting issues. The first, already discussed above, is how to allocate the purchase price to the various assets acquired. In general, all acquired assets are recorded on the books of the acquiring company at their fair values as of the acquisition date.

**goodwill** An intangible asset that exists when a business is valued at more than the fair market value of its net assets, usually due to strategic location, reputation, good customer relations, or similar factors; equal to the excess of the purchase price over the fair market value of the net assets purchased.

The second major accounting issue associated with the purchase of an entire company is the recording of goodwill. **Goodwill** represents all the special competitive advantages enjoyed by a company, such as a trained staff, good credit rating, reputation for superior products and services, and an established network of suppliers and customers. These factors allow an established business to earn more profits than would a new business, even though the new business might have the same type of building, the same equipment, and the same type of production processes.

When one company purchases another established business, the excess of the purchase price over the value of the identifiable net assets is assumed to represent the purchase of goodwill. The accounting for goodwill is illustrated later in the chapter.

## to summarize

When property, plant, and equipment assets are purchased, they are recorded at cost, which includes all expenditures associated with acquiring and getting them ready for their intended use, such as sales tax, shipping, and installation.

Sometimes assets are acquired by lease rather than purchase. A lease may be a simple short-term rental agreement, called an operating lease, or it may be substantially the same as a purchase transaction. In the latter case, called a capital lease, the party acquiring the asset (the lessee) records the asset and related liability as if the property had been purchased and financed with long-term debt. When a company constructs an asset for its own use, the recorded cost includes materials, labor, a reasonable allocation of overhead, and the cost of interest used to finance the construction. When two or more assets are acquired for a single price in a basket purchase, the relative fair market values are used to determine the respective costs.

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## 4 CALCULATING AND RECORDING DEPRECIATION EXPENSE

Compute straight-line and units-of-production depreciation expense for plant and equipment.

**depreciation** The process of cost allocation that assigns the original cost of plant and equipment to the periods benefited.

The second element in accounting for plant and equipment is the allocation of an asset s cost over its useful life. The matching principle requires that this cost be assigned to expense in the periods benefited from the use of the asset. The allocation procedure is called **depreciation**, and the allocated amount, recorded in a period-ending adjusting entry, is an expense that is deducted from revenues in order to determine income. It should be noted that the asset plant normally refers to buildings only; land is recorded as a separate asset and is not depreciated because it is usually assumed to have an unlimited useful life.

Accounting for depreciation is often confusing because students tend to think that depreciation expense reflects the decline in an asset s value. The concept of depreciation is nothing more than a systematic write-off of the original cost of an asset. The undepreciated cost is referred to as **book value**, which represents that portion of the original cost not yet assigned to the income statement as an expense. A company never claims that an asset s recorded book value is equal to its market value. In fact, market values of assets could increase at the same time that depreciation expense is being recorded.

**book value** For a long-term operating asset, the asset s original cost less any accumulated depreciation.

To calculate depreciation expense for an asset, you need to know (1) its original cost, (2) its estimated useful life, and (3) its estimated salvage, or residual, value. **Salvage value** is the amount expected to be received when the asset is sold at the end of its useful life. When an asset is purchased, its actual life and salvage value are obviously unknown. They must be estimated as realistically as is feasible, usually on the basis of experience with similar assets. In some cases, an asset will have little or no salvage value. If the salvage value is not significant, it is usually ignored in computing depreciation.

**salvage value** The amount expected to be received when an asset is sold at the end of its useful life.

Several methods can be used for depreciating the costs of assets for financial reporting. In the main part of this chapter, we describe two: straight-line and units-of-production. In the expanded material section of this chapter, we describe two more depreciation methods: sum-of-the-years -digits and declining-balance.

The **straight-line depreciation method** assumes that an asset will benefit all periods equally and that the cost of the asset should be assigned on a uniform basis for all accounting periods. If an asset s benefits are thought to be related to its productive output (miles driven in an automobile, for example), the **units-of-production method** is usually appropriate.

**straight-line depreciation method** The depreciation method in which the cost of an asset is allocated equally over the periods of an asset s estimated useful life.

**units-of-production method** The depreciation method in which the cost of an asset is allocated to each period on the basis of the productive output or use of the asset during the period.

To illustrate straight-line and units-of-production depreciation methods, we assume that Wheeler Resorts purchased a van on January 1 for transporting hotel guests to and from the airport. The following facts apply:

| | |
|---|---|
| Acquisition cost | $24,000 |
| Estimated salvage value | $2,000 |
| Estimated life: | |
| In years | 4 years |
| In miles driven | 60,000 miles |

## Straight-Line Method of Depreciation

The straight-line depreciation method is the simplest depreciation method. It assumes that an asset s cost should be assigned equally to all periods benefited. The formula for calculating annual straight-line depreciation is:

$$\frac{\text{Cost} - \text{Salvage value}}{\text{Estimated useful life (years)}} = \text{Annual depreciation expense}$$

With this formula, the annual depreciation expense for the van is calculated as:

$$\frac{\$24{,}000 - \$2{,}000}{4 \text{ years}} = \$5{,}500 \text{ depreciation expense per year}$$

When the depreciation expense for an asset has been calculated, a schedule showing the annual depreciation expense, the total accumulated depreciation, and the asset s book value (undepreciated cost) for each year can be prepared. The depreciation schedule for the van (using straight-line depreciation) is shown in Exhibit 9-5.

**exhibit 9-5** Depreciation Schedule with Straight-Line Depreciation

| | Annual Depreciation Expense | Accumulated Depreciation | Book Value |
|---|---|---|---|
| Acquisition date | | | $24,000 |
| End of year 1 | $ 5,500 | $ 5,500 | 18,500 |
| End of year 2 | 5,500 | 11,000 | 13,000 |
| End of year 3 | 5,500 | 16,500 | 7,500 |
| End of year 4 | 5,500 | 22,000 | 2,000 |
| | $22,000 | | |

The entry to record straight-line depreciation each year is:

| | | |
|---|---|---|
| Depreciation Expense | 5,500 | |
| Accumulated Depreciation, Hotel Van | | 5,500 |
| *To record annual depreciation for the hotel van.* | | |

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A comparison of the amounts of cost and accumulated depreciation reveals how old the plant and equipment is relative to its total expected life.

Depreciation Expense is reported on the income statement. Accumulated Depreciation is a contra-asset account that is offset against the cost of the asset on the balance sheet. Book value is equal to the asset account balance, which retains the original cost of the asset as a debit balance, minus the credit balance in the accumulated depreciation account.

At the end of the first year, the acquisition cost, accumulated depreciation, and book value of the van are presented on the balance sheet as follows:

| | |
|---|---|
| Property, Plant, and Equipment: | |
| Hotel van | $24,000 |
| Less: Accumulated depreciation | 5,500 |
| Book value | $18,500 |

Similar information is provided in the annual reports of all companies with property, plant, and equipment. For example, **GENERAL ELECTRIC** reported the following in the notes to its 1999 financial statements:

| | Original Cost (in millions) | |
|---|---|---|
| | **1999** | **1998** |
| **GE** | | |
| Land and improvements | $ 526 | $ 483 |
| Buildings, structures, and related equipment | 6,674 | 6,579 |
| Machinery and equipment | 20,849 | 19,491 |
| Leasehold costs and manufacturing plant under construction | 2,150 | 1,757 |
| | $30,199 | $28,310 |
| **GE Capital Services** | | |
| Buildings and equipment | $ 7,163 | $ 4,828 |
| Equipment leased to others | | |
| Vehicles | 10,942 | 9,825 |
| Aircraft | 10,591 | 9,321 |
| Railroad rolling stock | 3,323 | 2,804 |
| Marine shipping containers | 2,309 | 2,565 |
| Other | 3,832 | 3,447 |
| | $38,160 | $32,790 |
| | $68,359 | $61,100 |
| | **Accumulated Depreciation and Amortization** | |
| **GE** | $17,818 | $16,616 |
| **GE Capital Services** | | |
| Buildings and equipment | 2,127 | 1,733 |
| Equipment leased to others | 7,392 | 7,021 |
| | $27,337 | $25,370 |

Using this information, one can calculate that the property, plant, and equipment used by General Electric had been used for 59% ($17,818/$30,199) of its useful life as of the end of 1999. Similarly, the buildings and equipment used by **GE CAPITAL SERVICES** had been used for 30% ($2,127/$7,163) of its life, and the equipment leased by GE Capital Services to others had been used for 24% ($7,392/$30,997) of its useful life.

## Units-of-Production Method of Depreciation

The units-of-production depreciation method allocates an asset s cost on the basis of use rather than time. This method is used primarily when a company expects that asset usage will vary significantly from year to year. If the asset s usage pattern is uniform from year to year, the units-of-production method will produce the same depreciation pattern as the straight-line method. Assets with varying usage patterns for which this method of depreciation may be appropriate include automobiles and other vehicles whose life is estimated in terms of number of miles driven. It is also used for certain machines whose life is estimated in terms of number of units produced or number of hours of operating life. The formula for calculating the units-of-production depreciation for the year is:

$$\frac{\text{Cost} - \text{Salvage value}}{\text{Total estimated life in units, hours, or miles}} \times \text{Number of units produced, hours used, or miles driven during the year} = \text{Current year s depreciation expense}$$

To illustrate, we again consider Wheeler Resorts van, which has an expected life of 60,000 miles. With the units-of-production method, if the van is driven 12,000 miles during the first year, the depreciation expense for that year is calculated as follows:

$$\frac{\$24{,}000 - \$2{,}000}{60{,}000 \text{ miles}} \times 12{,}000 \text{ miles} = \$4{,}400 \text{ depreciation expense}$$

The entry to record units-of-production depreciation at the end of the first year of the van s life is:

| | | |
|---|---|---|
| Depreciation Expense | 4,400 | |
| Accumulated Depreciation, Hotel Van | | 4,400 |
| *To record depreciation for the first year of the hotel van s life.* | | |

The depreciation schedule for the four years is shown in Exhibit 9-6. This exhibit assumes that 18,000 miles were driven the second year, 21,000 the third year, and 9,000 the fourth year.

**exhibit 9-6** Depreciation Schedule with Units-of-Production Depreciation

| | Miles Driven | Depreciation Expense | Accumulated Depreciation | Book Value |
|---|---|---|---|---|
| Acquisition date | | | | $24,000 |
| End of year 1 | 12,000 | $ 4,400 | $ 4,400 | 19,600 |
| End of year 2 | 18,000 | 6,600 | 11,000 | 13,000 |
| End of year 3 | 21,000 | 7,700 | 18,700 | 5,300 |
| End of year 4 | 9,000 | 3,300 | 22,000 | 2,000 |
| | | $22,000 | | |

Note that part of the formulas for straight-line and units-of-production depreciation is the same. In both cases, cost − salvage value is divided by the asset s useful life. With straight-line, life is measured in years; with units-of-production, life is in miles or hours. With units-of-production, the depreciation per mile or hour must then be multiplied by the usage for the year to determine depreciation expense.

What if the van lasts longer than four years or is driven for more than 60,000 miles? Once the $22,000 difference between cost and salvage value has been recorded as depreciation expense, there is no further expense to record. Thus, any additional years or miles are free in the sense that no depreciation expense will be recognized in connection with them. However, as other vans are purchased in the future, the initial estimates of their useful lives will be adjusted to reflect the experience with previous vans.

What if the van lasts less than four years or is driven fewer than 60,000 miles? This topic is covered later in the chapter in connection with the accounting for the disposal of property, plant, and equipment.

## A Comparison of Depreciation Methods

The amount of depreciation expense will vary according to the depreciation method used by a company. Exhibit 9-7 compares the annual depreciation expense for Wheeler Resorts van under the straight-line and units-of-production depreciation methods. As this schedule makes clear, the total amount of depreciation is the same regardless of which method is used.

Straight-line is by far the most commonly used depreciation method because it is the simplest to apply and makes intuitive sense. For example, in the notes to its 1999 financial statements (see Appendix A), **MICROSOFT** discloses that it depreciates its property, plant, and equipment using the straight-line method over useful lives ranging from 1 to 15 years.

**exhibit 9-7** Comparison of Depreciation Expense Using Different Depreciation Methods

| | Straight-Line Depreciation | Units-of-Production Depreciation |
|---|---|---|
| End of year 1 | $ 5,500 | $ 4,400 |
| End of year 2 | 5,500 | 6,600 |
| End of year 3 | 5,500 | 7,700 |
| End of year 4 | 5,500 | 3,300 |
| Totals | $22,000 | $22,000 |

## Partial-Year Depreciation Calculations

Thus far, depreciation expense has been calculated on the basis of a full year. Businesses purchase assets at all times during the year, however, so partial-year depreciation calculations are often required. To compute depreciation expense for less than a full year, first calculate the depreciation expense for the year and then distribute it evenly over the number of months the asset is held during the year.

To illustrate, assume that Wheeler Resorts purchased its $24,000 van on July 1 instead of January 1. The depreciation calculations for the first one and one-half years, using straight-line depreciation, are shown in Exhibit 9-8. The units-of-production method has been omitted from the exhibit; midyear purchases do not complicate the calculations with this method because it involves number of miles driven, hours flown, and so on, rather than time periods.

**exhibit 9-8** Partial-Year Depreciation

| Method | Full-Year Depreciation | Depreciation 1st Year (6 months) | Depreciation 2nd Year (12 months) |
|---|---|---|---|
| Straight-line | $5,500 | $2,750 ($5,500 × ½) | $5,500 |

In practice, many companies simplify their depreciation computations by taking a full year of depreciation in the year an asset is purchased and none in the year the asset is sold, or vice versa. This is allowed because depreciation is based on estimates, and in the long run, the difference in the amounts is usually immaterial.

## Units-of-Production Method with Natural Resources

**natural resources** Assets that are physically consumed or waste away, such as oil, minerals, gravel, and timber.

**depletion** The process of cost allocation that assigns the original cost of a natural resource to the periods benefited.

Another common use for the units-of-production method is with natural resources. **Natural resources** include such assets as oil wells, timber tracts, coal mines, and gravel deposits. Like all other assets, newly purchased or developed natural resources are recorded at cost. This cost must be written off as the assets are extracted or otherwise depleted. This process of writing off the cost of natural resources is called **depletion** and involves the calculation of a depletion rate for each unit of the natural resource. Conceptually, depletion is exactly the same as depreciation; with plant and equipment, the accounting process is called depreciation, whereas with natural resources it is called depletion.

To illustrate, assume that Power-T Company purchases a coal mine for $1,200,000 cash. The entry to record the purchase is:

| | | |
|---|---|---|
| Coal Mine | 1,200,000 | |
| Cash | | 1,200,000 |
| *Purchased a coal mine for $1,200,000.* | | |

If the mine contains an estimated 200,000 tons of coal deposits (based on a geologist s estimate), the depletion expense for each ton of coal extracted and sold will be $6 ($1,200,000/200,000 tons). Here, the unit of production is the extraction of one ton of coal. If 12,000 tons of coal are mined and sold in the current year, the depletion entry is:

| | | |
|---|---|---|
| Depletion Expense | 72,000 | |
| Accumulated Depletion, Coal Mine | | 72,000 |
| *To record depletion for the year: 12,000 tons at $6 per ton.* | | |

After the first year s depletion expense has been recorded, the coal mine is shown on the balance sheet as follows:

| | |
|---|---|
| Coal mine | $1,200,000 |
| Less: Accumulated depletion | 72,000 |
| Book value | $1,128,000 |

But how do you determine the number of tons of coal in a mine? Because most natural resources cannot be counted, the amount of the resource owned is an estimate. The depletion calculation is therefore likely to be revised as new information becomes available. When an estimate is changed, a new depletion rate per unit is calculated and used to compute depletion during the remaining life of the natural resource or until another new estimate is made. Coverage of accounting for changes in estimates is included in the expanded material section of this chapter.

## to summarize

Depreciation is the process whereby the cost of an asset is allocated over its useful life. Two common and simple methods of depreciation are straight-line and units-of-production. The straight-line and units-of-production methods allocate cost proportionately over an asset s life on the bases of time and use, respectively. Regardless of which method is used, depreciation is only an allocation of an asset s cost over the periods benefited and is not a method of valuation. Natural resources are assets, such as gravel deposits or coal mines, that are consumed or that waste away. The accounting process of depreciation for natural resources is called depletion.

**5**

Account for repairs and improvements of property, plant, and equipment.

## REPAIRING AND IMPROVING PROPERTY, PLANT, AND EQUIPMENT

Sometime during its useful life, an asset will probably need to be repaired or improved. The accounting issue associated with these postacquisition expenditures is whether they should be immediately recognized as an expense or be added to the cost of the asset (capitalized). Remember from the discussion in Chapter 8 that an expenditure should be capitalized if it is expected to have an identifiable benefit in future periods.

Two types of expenditures can be made on existing assets. The first is ordinary expenditures for repairs, maintenance, and minor improvements. For example, a truck requires oil changes and periodic maintenance. Because these types of expenditures typically benefit only the period in which they are made, they are expenses of the current period.

The second type is an expenditure that lengthens an asset s useful life, increases its capacity, or changes its use. These expenditures are capitalized; that is, they are added to the asset s

cost instead of being expensed in the current period. For example, overhauling the engine of a delivery truck involves a major expenditure to extend the useful life of the truck. To qualify for capitalization, an expenditure should meet three criteria: (1) it must be significant in amount; (2) it should benefit the company over several periods, not just during the current one; and (3) it should increase the productive life or capacity of the asset.

To illustrate the differences in accounting for capital and ordinary expenditures, assume that Wheeler Resorts also purchases a delivery truck for $42,000. This truck has an estimated useful life of eight years and a salvage value of $2,000. The straight-line depreciation is $5,000 per year [($42,000 − $2,000)/8 years]. If the company spends $1,500 each year for normal maintenance, its annual recording of these expenditures is:

| | | |
|---|---|---|
| Repairs and Maintenance Expense | 1,500 | |
| Cash | | 1,500 |
| *Spent $1,500 for maintenance of delivery truck.* | | |

This entry has no effect on either the recorded cost or the depreciation expense of the truck. Now suppose that at the end of the sixth year of the truck s useful life, Wheeler spends $8,000 to overhaul the engine. This expenditure will increase the truck s remaining life from two to four years, but will not change its estimated salvage value. The depreciation for the last four years will be $4,500 per year, calculated as shown below.

| | Depreciation before Overhaul | | Depreciation after Overhaul |
|---|---|---|---|
| Original cost | $42,000 | Original cost | $42,000 |
| Less salvage value | 2,000 | Accumulated depreciation | |
| Cost to be allocated (depreciable amount) | $40,000 | (prior to overhaul) | 30,000 |
| Original life of asset | 8 years | Remaining book value | $12,000 |
| Original depreciation per year ($40,000/8) | $5,000 | Capital expenditure (overhaul) | 8,000 |
| Usage before overhaul | × 6 years | New book value | $20,000 |
| Accumulated depreciation prior to overhaul | $30,000 | Less salvage value | 2,000 |
| | | New depreciable amount | $18,000 |
| | | Remaining life | 4 years |
| | | New annual depreciation ($18,000/4) | $4,500 |

The journal entry to record the $8,000 capitalized expenditure is:

| | | |
|---|---|---|
| Delivery Truck | 8,000 | |
| Cash | | 8,000 |
| *Spent $8,000 to overhaul the engine of the $42,000 truck.* | | |

Another example of a capital expenditure is the cost of land improvements. Certain improvements are considered permanent, such as moving earth to change the land contour. Such an expenditure would be capitalized as part of the land account. Other expenditures may have a limited life, such as those incurred in building a road, a sidewalk, or a fence. These expenditures would be capitalized in a separate land improvements account and be depreciated over their useful lives.

It is often difficult to determine whether a given expenditure should be capitalized or expensed. The two procedures produce a different net income, however, so it is extremely important that such expenditures be properly classified. When in doubt, accepted practice is to record an expenditure as an expense to ensure that the asset is not reported at an amount that exceeds its future benefit.

## to summarize

There are two types of expenditures for existing long-term operating assets: capital and ordinary. In general, for an expenditure to be capitalized, it must (1) be significant in amount, (2) provide benefits for more than one period, and (3) increase the productive life or capacity of an asset. Ordinary expenditures merely maintain an asset s productive capacity at the level originally projected. Capital expenditures are added to the cost of an asset and thus affect future depreciation, whereas ordinary expenditures are expenses of the current period.

**6**

Identify whether a long-term operating asset has suffered a decline in value and record the decline.

## RECORDING IMPAIRMENTS OF ASSET VALUE

**impairment** A decline in the value of a long-term operating asset.

As mentioned earlier, the value of a long-term asset depends on the future cash flows expected to be generated by that asset. Occasionally, events occur after the purchase of an asset that significantly reduce its value. For example, a decline in the consumer demand for high-priced athletic shoes can cause the value of a shoe-manufacturing plant to plummet. Accountants call this **impairment**. When an asset is impaired, the event should be recognized in the financial statements, both as a reduction in the reported value of the asset in the balance sheet and as a loss in the income statement. Of course, the value of long-term assets can also increase after the purchase date. In the United States, these increases are not recorded, as explained more fully later in this section.

### Recording Decreases in the Value of Property, Plant, and Equipment

According to U.S. accounting rules, the value of an asset is impaired when the sum of estimated future cash flows from that asset is less than the book value of the asset. This computation ignores the time value of money. As illustrated in the example below, this is a strange impairment threshold a more reasonable test would be to compare the book value to the fair value of the asset.

Once it has been determined that an asset is impaired, the amount of the impairment is measured as the difference between the book value of the asset and the fair value. To summarize, the existence of an impairment loss is determined using the sum of the estimated future cash flows from the asset, ignoring the time value of money. The amount of the impairment loss is measured using the fair value of the asset, which does incorporate the time value of money. The practical result of this two-step process is that an impairment loss is not recorded unless it is quite certain that the asset has suffered a permanent decline in value.

To illustrate, assume that Wheeler Resorts purchased a fitness center building five years ago for $600,000. The building has been depreciated using the straight-line method with a 20-year useful life and no residual value. Wheeler estimates that the building has a remaining useful life of 15 years, that net cash inflow from the building will be $25,000 per year, and that the fair value of the building is $230,000.

Annual depreciation for the building has been $30,000 ($600,000 ÷ 20 years). The current book value of the building is computed as follows:

| | |
|---|---|
| Original cost | $600,000 |
| Accumulated depreciation ($30,000 × 5 years) | 150,000 |
| Book value | $450,000 |

The book value of $450,000 is compared with the $375,000 ($25,000 × 15 years) sum of future cash flows (ignoring the time value of money) to determine whether the building is im-

paired. The sum of future cash flows is only $375,000, which is less than the $450,000 book value, so an impairment loss should be recognized. The loss is equal to the $220,000 ($450,000 − $230,000) difference between the book value of the building and its fair value. The impairment loss would be recorded as follows:

| | | |
|---|---|---|
| Accumulated Depreciation, Building | 150,000 | |
| Loss on Impairment of Building | 220,000 | |
| Building ($600,000 − $230,000) | | 370,000 |
| *Recognized $220,000 impairment loss on building.* | | |

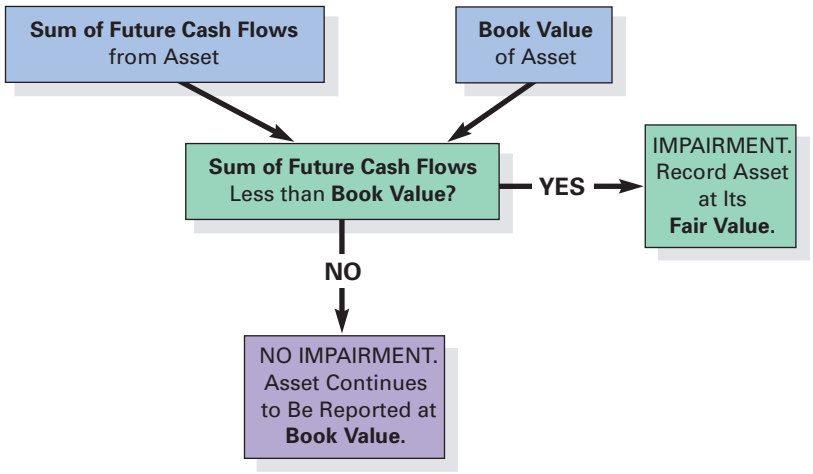
This journal entry basically records the asset as if it were being acquired brand new at its fair value of $230,000. The existing accumulated depreciation balance is wiped clean, and the new recorded value of the asset is its fair value of $230,000 ($600,000 − $370,000). After an impairment loss is recognized, no restoration of the loss is allowed even if the fair value of the asset later recovers.

The odd nature of the impairment test can be seen if the facts in the Wheeler example are changed slightly. Assume that net cash inflow from the building will be $35,000 per year and that the fair value of the building is $330,000. With these numbers, no impairment loss is recognized, even though the fair value of $330,000 is less than the book value of $450,000, because the sum of future cash flows of $525,000 ($35,000 × 15 years) exceeds the book value. Thus, in this case the asset would still be recorded at its book value of $450,000, even though its fair value is actually less. As mentioned above, the practical impact of the two-step impairment test is that no impairment losses are recorded unless the future cash flow calculations offer very strong evidence of a permanent decline in asset value. The impairment test is summarized in Exhibit 9-9.

Do you think businesses would prefer an impairment test involving only the comparison of the book value of an asset to its fair value? Explain.

**RITE AID**, one of the largest retail drugstore chains in the United States, provides an example of the reporting of an impairment loss. As of February 27, 1999, Rite Aid operated 3,821 drugstores. During 1998 and 1999, Rite Aid experienced significant financial difficulties and initiated a plan to vacate some markets and to close or consolidate some stores in other markets. In connection with this plan, Rite Aid recorded a $94 million loss for impairment losses associated with land, buildings, fixtures, leasehold improvements, prescription files, lease acquisition costs and goodwill.

**exhibit 9-9** Impairment Test



### Recording Increases in the Value of Property, Plant, and Equipment

Under U.S. accounting standards, increases in the value of property, plant, and equipment are not recognized. Gains from increases in asset value are recorded only if and when the asset is sold. Thus, in the Wheeler example discussed above, if the fair value of the building rises to $800,000, the building would still be reported in the financial statements at its depreciated book value of $450,000. This is an example of the conservative bias that often exists in the accounting rules: losses are recognized when they occur, but the recognition of gains is deferred until the asset is sold.

Although increases in the value of property, plant, and equipment are not recognized in the United States, accounting rules in other countries do allow for their recognition. For example, companies in Great Britain often report their long-term operating assets at their fair values. Because this upward revaluation of property, plant, and equipment is allowable under international accounting standards, it will be interesting to watch over the next decade or so to see whether sentiment grows to allow this practice in the United States as well.

## to summarize

When an asset s value declines after it is purchased, it is said to be impaired. Recording an impairment loss is a two-step process. First, the recorded book value of the asset is compared with the sum of future cash flows expected to be generated by the asset. Second, if the book value is lower, then a loss is recognized in an amount equal to the difference between the book value of the asset and its fair value. According to U.S. accounting rules, increases in the value of property, plant, and equipment are not recognized.

**7**

Record the discarding and selling of property, plant, and equipment.

## DISPOSAL OF PROPERTY, PLANT, AND EQUIPMENT

Plant and equipment eventually become worthless or are sold. When a company removes one of these assets from service, it has to eliminate the asset s cost and accumulated depreciation from the accounting records. There are basically three ways to dispose of an asset: (1) discard or scrap it, (2) sell it, or (3) exchange it for another asset.

### Discarding Property, Plant, and Equipment

When an asset becomes worthless and must be scrapped, its cost and its accumulated depreciation balance should be removed from the accounting records. If the asset s total cost has been depreciated, there is no loss on the disposal. If, on the other hand, the cost is not completely depreciated, the undepreciated cost represents a loss on disposal.

To illustrate, we assume that Wheeler Resorts, Inc., purchases a computer for $15,000. The computer has a five-year life and no estimated salvage value and is depreciated on a straight-line basis. If the computer is scrapped after five full years, the entry to record the disposal is as follows:

| | | |
|---|---|---|
| Accumulated Depreciation, Computer | 15,000 | |
| Computer | | 15,000 |
| *Scrapped $15,000 computer.* | | |

If Wheeler must pay $300 to have the computer dismantled and removed, the entry to record the disposal is:

| | | |
|---|---|---|
| Accumulated Depreciation, Computer | 15,000 | |
| Loss on Disposal of Computer | 300 | |
| Computer | | 15,000 |
| Cash | | 300 |
| *Scrapped $15,000 computer and paid disposal costs of $300.* | | |

If the computer had been scrapped after only four years of service (and after $12,000 of the original cost has been depreciated), there would have been a loss on disposal of $3,300 (including the disposal cost), and the entry would have been:

| | | |
|---|---|---|
| Accumulated Depreciation, Computer | 12,000 | |
| Loss on Disposal of Computer | 3,300 | |
| Computer | | 15,000 |
| Cash | | 300 |
| *Scrapped $15,000 computer and recognized loss of $3,300 (including $300 disposal costs).* | | |

Don t think of the losses recognized above as bad or the gains as good. A loss on disposal simply means that, given the information we now have, it appears that we didn t record enough depreciation expense in previous years. As a result, the book value of the asset is higher than the amount we can get on disposal. Similarly, a gain means that too much depreciation expense was recognized in prior years, making the book value of the asset lower than its actual disposal value.

## Selling Property, Plant, and Equipment

A second way of disposing of property, plant, and equipment is to sell it. If the sales price of the asset exceeds its book value (the original cost less accumulated depreciation), there is a gain on the sale. Conversely, if the sales price is less than the book value, there is a loss.

To illustrate, we refer again to Wheeler s $15,000 computer. If the computer is sold for $600 after five full years of service, assuming no disposal costs, the entry to record the sale is:

| | | |
|---|---|---|
| Cash | 600 | |
| Accumulated Depreciation, Computer | 15,000 | |
| Computer | | 15,000 |
| Gain on Sale of Computer | | 600 |
| *Sold $15,000 computer at a gain of $600.* | | |

Because the asset was fully depreciated, its book value was zero and the $600 cash received represents a gain. If the computer had been sold for $600 after only four years of service, there would have been a loss of $2,400 on the sale, and the entry to record the sale would have been:

| | | |
|---|---|---|
| Cash | 600 | |
| Accumulated Depreciation, Computer | 12,000 | |
| Loss on Sale of Computer | 2,400 | |
| Computer | | 15,000 |
| *Sold $15,000 computer at a loss of $2,400.* | | |

The $2,400 loss is the difference between the sales price of $600 and the book value of $3,000 ($15,000 − $12,000). The amount of a gain or loss is thus a function of two factors: (1) the amount of cash received from the sale, and (2) the book value of the asset at the date of sale. The book value can vary from the market price of the asset for two reasons: (1) the ac-

counting for the asset is not intended to show market value in the financial statements, and (2) it is difficult to estimate salvage value and useful life at the outset of an asset s life.

### Exchanging Property, Plant, and Equipment

A third way of disposing of property, plant, and equipment is to exchange it for another asset. Such exchanges occur regularly with cars, trucks, machines, and other types of large equipment. When dissimilar assets are exchanged, such as a truck for a computer, the transaction is accounted for exactly as outlined previously: the acquired asset is recorded in the books at its fair market value, and a gain or loss may be recognized depending on the difference between this market value and the book value of the asset that was disposed of. Accounting for exchanges of similar assets can be more complicated and therefore is not discussed in this text. For a full treatment of the accounting for the exchange of similar assets, see an intermediate accounting text.

## to summarize

There are three ways of disposing of assets: (1) discarding (scrapping), (2) selling, and (3) exchanging. If a scrapped asset has not been fully depreciated, a loss equal to the undepreciated cost or book value is recognized. When an asset is sold, there is a gain if the sales price exceeds the book value and a loss if the sales price is less than the book value.

## ACCOUNTING FOR INTANGIBLE ASSETS

**8**

Account for the acquisition and amortization of intangible assets and understand the special difficulties associated with accounting for intangibles.

**amortization** The process of cost allocation that assigns the original cost of an intangible asset to the periods benefited.

Intangible assets are rights and privileges that are long-lived, are not held for resale, have no physical substance, and usually provide their owner with competitive advantages over other firms. Familiar examples are patents, franchises, licenses, and goodwill. Although intangible assets have no physical substance, they are accounted for in the same way as other long-term operating assets. That is, they are originally recorded at cost, and the cost is allocated over the useful or legal life, whichever is shorter. The periodic allocation to expense of an intangible asset s cost is called **amortization**. Conceptually, depreciation (with plant and equipment), depletion (with natural resources), and amortization (with intangible assets) are exactly the same thing. Straight-line amortization is generally used for intangible assets.

The traditional accounting model is designed for manufacturing and merchandising companies. Accordingly, accountants have developed intricate and sophisticated accounting methods for use with buildings, equipment, inventory, and receivables. The accounting procedures for gathering and reporting useful information about intangible assets are not as well developed. As the business environment is increasingly dominated by information, service, and reputation, the accounting profession is facing the challenge of improving the accounting for intangible assets.

The importance of intangible assets can be illustrated by considering **GENERAL ELECTRIC**. As mentioned in Chapter 2, if the balance sheet were perfect, the amount of owners equity would be equal to the market value of the company. On December 31, 1999, GE s reported equity was equal to $42.557 billion. The actual market value of GE on December 31, 1999, was $511 billion. The reason for the large difference between the recorded value and the actual value is that a traditional balance sheet excludes many important intangible economic assets. Examples of GE s important intangible economic assets are its track record of successful products and its entrenched market position in the many industries in which it operates. These intangible factors are by far the most valuable assets owned by GE, but they fall outside the traditional accounting process.

As with many accounting issues, accounting for intangibles involves a trade-off between relevance and reliability. Information concerning intangible assets is relevant, but to meet the stan-

*Fortune* magazine posts its Fortune 500 list on its Web site, **http://fortune.com**. The information posted includes the reported equity and market values for the 500 largest companies in the United States. What are the differences between reported equity and the market value of equity for **THE COCA-COLA COMPANY** and for **GENERAL MOTORS CORPORATION**?

dard for recognition in the financial statements, the recorded amount for the intangible must also be reliable. As a result, accounting for intangibles focuses on identifying the costs associated with securing or developing the intangible assets.

Because intangible assets are characterized by a lack of physical qualities, it is difficult to determine the value and life of any future benefits those assets might produce. As a result, it is difficult to separate expenditures that are essentially operating expenses from those that give rise to intangible assets. For example, advertising and promotion campaigns and training programs provide future benefits to the firm. If this were not the case, firms would not spend the millions of dollars on these programs that they do. From an accounting perspective, however, it is extremely difficult to measure the amount and life of the benefits generated by such programs. Therefore, as discussed in Chapter 8, expenditures for these and similar items are typically written off as an expenses in the period incurred.

The accounting for intangible assets is illustrated below with a discussion of the accounting for patents, franchises, and licenses.

**patent** An exclusive right granted for 17 years by the federal government to manufacture and sell an invention.

## Patents

A **patent** is an exclusive right to produce and sell a commodity that has one or more unique features. In the United States, patents are issued to inventors by the federal government and have a legal life of 17 years. Patents may be obtained on new products developed in a company s own research laboratories, or they may be purchased from others. If a patent is purchased from others, its cost is simply the purchase price, and it is recorded as an asset (patent). The cost of the patent is amortized over the useful life of the patent, which may or may not coincide with the patent s legal life.

**f y i**

The U.S. rule for accounting for research and development differs from the international rule. According to international accounting rules, research and development costs that are incurred after the technological feasibility of a project has been demonstrated should be capitalized as an asset.

The cost of a patent for a product developed within a firm is difficult to determine. Should it include research and development costs as well as legal fees to obtain the patent? Should other company expenses such as administrative costs be included? Because of the high degree of uncertainty about their future benefits, U.S. accounting rules dictate that research and development costs must be expensed in the period in which they are incurred. Therefore, all research and development costs of internally developed patents are expensed as they are incurred.

To illustrate the accounting for patents, assume that Wheeler Resorts, Inc., acquires, for $200,000, a patent granted seven years earlier to another firm. The entry to record the purchase of the patent is:

| | | |
|---|---|---|
| Patent | 200,000 | |
| Cash | | 200,000 |
| *Purchased patent for $200,000.* | | |

Because 7 years of its 17-year legal life have already elapsed, the patent now has a legal life of only 10 years, although it may have a shorter useful life. If its useful life is assumed to be eight years, one-eighth of the $200,000 cost should be amortized each year for the next eight years. The entry each year to record the patent amortization expense is:

| | | |
|---|---|---|
| Amortization Expense, Patent | 25,000 | |
| Patent | | 25,000 |
| *To amortize one-eighth of the cost of the patent.* | | |

Notice that in the above entry, the patent account was credited. Alternatively, a contra-asset account, such as Accumulated Amortization, could have been credited. In practice, however, crediting the intangible asset account directly is more common. This is different from the normal practice of crediting Accumulated Depreciation for buildings or equipment.

## Franchises and Licenses

**franchise** An entity that has been licensed to sell the product of a manufacturer or to offer a particular service in a given area.

**license** The right to perform certain activities, generally granted by a governmental agency.

Issued either by companies or by government agencies, **franchises** and **licenses** are exclusive rights to perform services in certain geographic areas. For example, **MCDONALD S CORPORATION** sells franchises to individuals to operate its fast-food outlets in specific locations. Similarly, local airports issue licenses to airlines allowing them to use a specified number of boarding gates for a specified length of time. As with patents, the cost of a franchise or license is amortized over its useful or legal life, whichever is shorter.

## Goodwill

**caution**

Goodwill is recorded only when it is purchased. A company s reported goodwill balance does not reflect the company s own homegrown goodwill. So, **MICROSOFT** s goodwill is not recognized in Microsoft s balance sheet, but it would be recognized in your balance sheet if you were to purchase Microsoft.

**fyi**

In 2001, the FASB was considering whether to lower the maximum allowable estimated life for goodwill to 20 years.

When a business is purchased, the negotiated price often exceeds the total fair market value of the individual assets purchased minus the outstanding liabilities assumed by the buyer. As mentioned earlier, this excess in purchase price that cannot be allocated to specific assets is called goodwill and is an intangible asset. The emergence of goodwill in such a transaction is considered an indication that the purchased business is worth more than its net assets, due to such favorable characteristics as a good reputation, a strategic location, product superiority, or management skill.

Goodwill is recorded only if its value can be objectively determined by a transaction. Therefore, even though two businesses may enjoy the same favorable characteristics, goodwill will be recognized only when it is purchased, that is, when one company buys another company. This disparity in accounting exists because the action of a buyer in paying a premium for a firm is objective evidence that goodwill exists and has a specific value.

As you can imagine, estimating the useful life of goodwill is extremely difficult. To give companies some direction in estimating the useful life of goodwill, accounting standard-setters have established some guidelines. In the United States, for example, historically the accounting rule has been that the estimated life of goodwill must be 40 years or less. According to international accounting standards, goodwill usually is assumed to have a life of 5 years or less, although a life of up to 20 years is sometimes justifiable. Most U.S. companies simply assume that any goodwill they purchase has a life of 40 years.

To illustrate the accounting for goodwill, assume that, in order to cater to the medicinal needs of its guests, Wheeler Resorts purchases Valley Drug Store for $400,000. At the time of purchase, the recorded assets and liabilities of Valley Drug have the following fair market values:

| | |
|---|---|
| Inventory | $220,000 |
| Long-term operating assets | 110,000 |
| Other assets (prepaid expenses, etc.) | 10,000 |
| Liabilities | (20,000) |
| Total net assets | $320,000 |

Note that Wheeler Resorts records these items at their fair market values on the date purchased, just as it does when purchasing individual assets.

Because Wheeler was willing to pay $400,000 for Valley Drug, there must have been other favorable, intangible factors worth approximately $80,000. These factors are called goodwill, and the entry to record the purchase of the drug store is:

| | | |
|---|---|---|
| Inventory | 220,000 | |
| Long-Term Operating Assets | 110,000 | |
| Other Assets | 10,000 | |
| Goodwill | 80,000 | |
| Liabilities | | 20,000 |
| Cash | | 400,000 |
| *Purchased Valley Drug Store for $400,000.* | | |

If Wheeler decides to use 40 years as the useful life of the goodwill, the yearly amortization entry is:

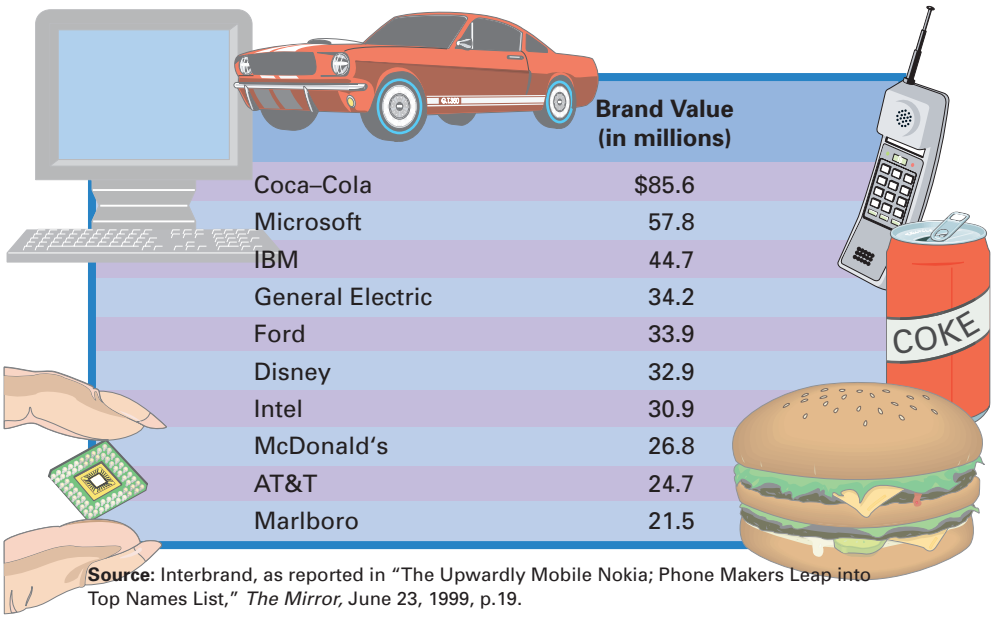
| | | |
|---|---|---|
| Amortization Expense, Goodwill | 2,000 | |
| Goodwill | | 2,000 |
| *To record annual straight-line amortization of goodwill ($80,000/40 years).* | | |

An extreme example of the amount of goodwill that can be involved in a transaction occurred when **DISNEY** acquired **ABC** in 1996. At the time of the acquisition, ABC had identifiable assets worth $4.0 billion and identifiable liabilities of $4.3 billion, indicating a fair market value of net identifiable assets of −$0.3 billion. In spite of this apparent negative net worth, Disney paid $18.9 billion for ABC, a price that exceeded the fair market value of ABC s net identifiable assets by more than $19 billion. Presumably, Disney knew what it was doing in paying this much for ABC, and the $19 billion, which was recorded as goodwill on Disney s books, represents the fair market value of ABC s market position, reputation, network of radio and television affiliates, and creative staff under contract.

## Difficulties of Accounting for Intangible Assets: The Case of Brand Names

Brand names offer a good illustration of the difficulty associated with accounting for intangible assets. As shown in Exhibit 9-10, a brand name can be an extremely valuable asset. According to **INTERBRAND**, a consulting firm specializing in valuing brand names, if you were to try to buy the worldwide rights to the exclusive use of the name *Coca-Cola,* you would have to pay in excess of $85 billion. A valuable brand name such as *Coca-Cola* or *Disney* arises as an integral part of improving products, advertising, strategic expansion, and so forth. Accordingly, it is very difficult to identify which costs associated with brand name sales are normal business expenses and which actually contribute to brand name value. Therefore, even though a brand name might have significant economic value, it is unlikely that the value, or the costs associated with developing the brand name, could be separately and reliably identified.

**exhibit 9-10** Ten Most Valuable Brands in the World for 1999




**Source:** Interbrand, as reported in "The Upwardly Mobile Nokia; Phone Makers Leap into Top Names List," *The Mirror,* June 23, 1999, p.19.

As mentioned earlier in the chapter, a useful technique for valuing tangible long-term assets is to estimate the present value of the future cash flows expected to be associated with the asset. This technique is impractical for most intangible assets because the value of the intangible is inextricably connected with its use in conjunction with other assets. Thus, identifying the future cash flows associated with the intangible asset itself is nearly impossible.

In summary, the accounting for intangibles is still in its infancy. As accountants strive to meet the information demands of business decision makers, we will see a rapid development in the standards of accounting for intangibles.

## to summarize

Intangible assets are long-term rights and privileges that have no physical substance but provide competitive advantages to owners. Common intangible assets are patents, franchises, licenses, and goodwill. The cost of an intangible asset is amortized over the economic life of the asset. Because it is often difficult to trace the development of specific intangible assets to specific costs, it is difficult to reliably recognize the assets in the financial statements.

**9**

Use the fixed asset turnover ratio as a measure of how efficiently a company is using its property, plant, and equipment.

## MEASURING PROPERTY, PLANT, AND EQUIPMENT EFFICIENCY

In this section we discuss the fixed asset turnover ratio, which uses financial statement data to give a rough indication of how efficiently a company is utilizing its property, plant, and equipment to generate sales. We also illustrate that the fixed asset turnover ratio must be interpreted carefully because, as with most other financial ratios, acceptable values for this ratio differ significantly from one industry to the next.

### Evaluating the Level of Property, Plant, and Equipment

**fixed asset turnover** The number of dollars in sales generated by each dollar of fixed assets; computed as sales divided by property, plant, and equipment.

**Fixed asset turnover** can be used to evaluate the appropriateness of the level of a company s property, plant, and equipment. Fixed asset turnover is computed as sales divided by average property, plant, and equipment (fixed assets) and is interpreted as the number of dollars in sales generated by each dollar of fixed assets. This ratio is also often called PP&E turnover. The computation of the fixed asset turnover for **GENERAL ELECTRIC** is given below. All financial statement numbers are in millions.

| | 1999 | 1998 |
|---|---|---|
| Sales | $111,630 | $100,469 |
| Property, plant, and equipment: | | |
| Beginning of year | $ 35,730 | $ 32,316 |
| End of year | 41,022 | 35,730 |
| Average fixed assets [(beginning balance + ending balance) ÷ 2] | $ 38,376 | $ 34,023 |
| Fixed asset turnover | 2.91 times | 2.95 times |

The fixed asset turnover calculations suggest that GE used its fixed assets to generate sales about as efficiently in 1999 as in 1998. In 1999, each dollar of fixed assets generated $2.91 in sales, down just slightly from $2.95 in 1998.

## Industry Differences in Fixed Asset Turnover

As with all ratios, the fixed asset turnover ratio must be used carefully to ensure that erroneous conclusions are not made. For example, fixed asset turnover ratio values for two companies in different industries cannot be meaningfully compared. This point can be illustrated using the fact that General Electric is composed of two primary parts General Electric, the manufacturing company, and GE Capital Services, the financial services firm. The fixed asset turnover ratio computed earlier was for both these parts combined. Because GE Capital Services does not use property, plant, and equipment for manufacturing but instead leases the assets to other companies in order to earn financial revenue, one would expect its fixed asset turnover ratio to be quite unlike that for a manufacturing firm. In fact, as shown below, the fixed asset turnover ratio for the manufacturing segments of General Electric was 5.06 in 1999, nearly double the ratio value for the company as a whole.

**Fixed Asset Turnover Ratio**
**General Electric Manufacturing Segments Only**

| | 1999 | 1998 |
|---|---|---|
| Sales | $60,944 | $56,026 |
| Property, plant, and equipment: | | |
| Beginning of year | $11,694 | $11,118 |
| End of year | 12,381 | 11,694 |
| Average fixed assets [(beginning balance + ending balance) ÷ 2] | $12,038 | $11,406 |
| Fixed asset turnover | 5.06 times | 4.91 times |

## to summarize

The fixed asset turnover ratio can be used as a general measure of how efficiently a company is using its property, plant, and equipment. Fixed asset turnover is computed as sales divided by average property, plant, and equipment and is interpreted as the number of dollars in sales generated by each dollar of fixed assets. Standard values for this ratio differ significantly from industry to industry.

## expanded material

**Two topics related to operational assets that are traditionally covered in introductory accounting classes were not covered in the main part of this chapter. These two topics relate to depreciation accelerated depreciation methods and changes in depreciation estimates.**

**10**

Compute declining-balance and sum-of-the-years -digits depreciation expense for plant and equipment.

## ACCELERATED DEPRECIATION METHODS

Earlier in the chapter, straight-line and units-of-production depreciation methods were discussed. Both of these methods allocate the cost of an asset evenly over its life. With straight-line depreciation, each time period during the asset s useful life is assigned an equal amount of depreciation. With

units-of-production depreciation, each mile driven, hour used, or other measurement of useful life is assigned an equal amount of depreciation. Sometimes, a depreciation method that does not assign costs equally over the life of the asset is preferred. For example, if most of an asset s benefits will be realized in the earlier periods of the asset s life, the method used should assign more depreciation to the earlier years and less to the later years. Examples of these accelerated depreciation methods are the declining-balance and the sum-of-the-years -digits methods. These methods are merely ways of assigning more of an asset s depreciation to earlier periods and less to later periods.

To illustrate these depreciation methods, we will again use the Wheeler Resorts example from earlier in the chapter. Assume again that Wheeler Resorts purchased a van for transporting hotel guests to and from the airport. The following facts apply:

| | |
|---|---|
| Acquisition cost | $24,000 |
| Estimated salvage value | $2,000 |
| Estimated life: | |
| In years | 4 years |
| In miles driven | 60,000 miles |

## Declining-Balance Method of Depreciation

**declining-balance depreciation method** An accelerated depreciation method in which an asset s book value is multiplied by a constant depreciation rate (such as double the straight-line percentage, in the case of double-declining-balance).

The **declining-balance depreciation method** provides for higher depreciation charges in the earlier years of an asset s life than does the straight-line method. The declining-balance method involves multiplying a fixed rate, or percentage, by a decreasing book value. This rate is a multiple of the straight-line rate. Typically, it is twice the straight-line rate, but it also can be 175, 150, or 125% of the straight-line rate. Our depreciation of Wheeler s hotel van will illustrate the declining-balance method using a fixed rate equal to twice the straight-line rate. This method is often referred to as the double-declining-balance depreciation method.

Declining-balance depreciation differs from the other depreciation methods in two respects: (1) the initial computation ignores the asset s salvage value, and (2) a constant depreciation rate is multiplied by a decreasing book value. The salvage value is not ignored completely because the depreciation taken during the asset s life cannot reduce the asset s book value below the estimated salvage value.

The double-declining-balance (DDB) rate is twice the straight-line rate, computed as follows:

$$\frac{1}{\text{Estimated life (years)}} \times 2 = \text{DDB rate}$$

This rate is multiplied times the book value at the beginning of each year (cost − accumulated depreciation) to compute the annual depreciation expense for the year. If the 150% declining

business environment essay

**Pay Me Now or Pay Me Later?** Given the choice of paying income taxes now or later, an overwhelming majority of U.S. taxpayers would choose to pay later. Although it is illegal to evade income taxes, the postponement or deferral of tax payments is not only legal but is also a fundamental principle of good tax planning.

One way that businesses can defer income taxes is through the selection of accounting methods. The LIFO (last-in, first-out) method of inventory valuation, for example, is used primarily for the purpose of postponing tax payments. In some cases, companies use one accounting method for their financial statements and another for their tax returns.

Depreciation is the most common cause of differences between net income on the income statement

balance were being used instead, the 2 in the rate formula would be replaced by 1.5 and so on for any other percentages.

To illustrate, the depreciation calculation for the van using the 200% (or double) declining-balance method is:

| | |
|---|---|
| Straight-line rate | 4 years = ... = 25% |
| Double the straight-line rate | 25% × 2 = 50% |
| Annual depreciation | 50% × undepreciated cost (book value) |

**caution**

With declining-balance depreciation, the asset is not depreciated below its salvage value, though this figure is ignored in the initial computations.

Based on this information, the formula for double-declining-balance depreciation can be expressed as (straight-line rate × 2) × (cost − accumulated depreciation) = current year s depreciation expense. The double-declining-balance depreciation for the four years is shown in Exhibit 9-11. As you review this exhibit, note that the book value of the van at the end of year 4 is $2,000, its salvage value.

If Wheeler had applied the declining-balance method to depreciate the hotel van on the basis of 150% of the straight-line rate, the fixed rate would have been 37.5%, computed as follows: 25% × 1.50 = 37.5%. Using the 37.5% fixed rate, the annual depreciation of the hotel van would have been as follows:

| | |
|---|---|
| First year: | $24,000 × 37.5% = $9,000 |
| Second year: | $24,000 − $9,000 = $15,000 × 37.5% = $5,625 |
| Third year: | $15,000 − $5,625 = $9,375 × 37.5% = $3,516 |
| Fourth year: | $9,375 − $3,516 = $5,859 − $2,000 salvage value = $3,859 |

**exhibit 9-11** Depreciation Schedule with Double-Declining-Balance Depreciation

| | Computation | Annual Depreciation Expense | Accumulated Depreciation | Book Value |
|---|---|---|---|---|
| Acquisition date | | | | $24,000 |
| End of year 1 | $24,000 × 0.50 | $12,000 | $12,000 | 12,000 |
| End of year 2 | 12,000 × 0.50 | 6,000 | 18,000 | 6,000 |
| End of year 3 | 6,000 × 0.50 | 3,000 | 21,000 | 3,000 |
| End of year 4 | * | 1,000 | 22,000 | 2,000 |
| | | $22,000 | | |

*In year 4, depreciation expense cannot exceed $1,000 because the book value cannot be reduced below salvage value.

and taxable income on the tax return. Most companies use straight-line depreciation for financial statements to maximize income reported to stockholders while using the accelerated methods permitted by the tax rules to minimize taxable income in the early years of asset life. This allows companies to save cash by reducing the amount of taxes paid currently. Although the total amount of asset cost to be deducted will ultimately be the same for tax and financial reporting, the deferral of income taxes enables a business to earn additional income by investing cash that is retained as a result of delaying tax payments to future years.

The amount of income taxes that companies can defer is by no means insignificant. For example, **GENERAL ELECTRIC** was able to delay the payment of $1.499 billion in taxes in 1999 because of differences between financial accounting rules and income tax regulations.

Since a total book value of $5,859 remains at the end of year 3, the remaining book value less the estimated salvage value is expensed in year 4.

**DEPRECIATION FOR INCOME TAX PURPOSES** Net income reported on the financial statements prepared for stockholders, creditors, and other external users often differs from taxable income reported on income tax returns. The most common cause of differences between financial reporting and tax returns is the computation of depreciation. Depreciation for income tax purposes must be computed in accordance with federal income tax law, which specifies rules to be applied in computing tax depreciation for various categories of assets. Income tax rules are designed to achieve economic objectives, such as stimulating investment in productive assets.

The income tax depreciation system in the United States is called the Modified Accelerated Cost Recovery System (MACRS). MACRS is based on declining-balance depreciation and is designed to allow taxpayers to quickly deduct the cost of assets acquired. Allowing this accelerated depreciation deduction for income tax purposes gives companies tax benefits for investing in new productive assets. Presumably, this will spur investment, create jobs, and make voters more likely to reelect their representatives.

## Sum-of-the-Years -Digits Method of Depreciation

**sum-of-the-years -digits (SYD) depreciation method** The accelerated depreciation method in which a constant balance (cost minus salvage value) is multiplied by a declining depreciation rate.

Like the declining-balance method, the **sum-of-the-years -digits (SYD) depreciation method** provides for a proportionately higher depreciation expense in the early years of an asset s life. It is therefore appropriate for assets that provide greater benefits in their earlier years (such as trucks, machinery, and equipment) as opposed to assets that benefit all years equally (as buildings do). The formula for calculating SYD is:

$$\frac{\text{Number of years of life remaining at beginning of year}}{\text{Sum-of-the-years -digits}} \times (\text{Cost} - \text{Salvage value}) = \text{Depreciation expense}$$

The numerator is the number of years of estimated life remaining at the beginning of the current year. The van, with a four-year life, would have four years remaining at the beginning of the first year, three at the beginning of the second, and so on. The denominator is the sum of the years of the asset s life. The sum of the years digits for the van is 10 (4 + 3 + 2 + 1). In other words, the numerator decreases by one year each year, whereas the denominator remains the same for each year s calculation of depreciation. Also note that the asset s cost is reduced by the salvage value in computing the annual depreciation expense as is done for the straight-line method but not for the declining-balance method.

The depreciation on the van for the first two years is:

First year: $\frac{4}{10} \times (\$24{,}000 - \$2{,}000) = \$8{,}800$

Second year: $\frac{3}{10} \times (\$24{,}000 - \$2{,}000) = \$6{,}600$

The depreciation schedule for four years is shown in Exhibit 9-12.

**exhibit 9-12** Depreciation Schedule with Sum-of-the-Years -Digits Depreciation

| | Annual Depreciation Expense | Accumulated Depreciation | Book Value |
|---|---|---|---|
| Acquisition date | | | $24,000 |
| End of year 1 | $ 8,800 | $ 8,800 | 15,200 |
| End of year 2 | 6,600 | 15,400 | 8,600 |
| End of year 3 | 4,400 | 19,800 | 4,200 |
| End of year 4 | 2,200 | 22,000 | 2,000 |
| Total | $22,000 | | |

The entry to record the sum-of-the-years -digits depreciation for the first year is:

| | | |
|---|---|---|
| Depreciation Expense | 8,800 | |
| Accumulated Depreciation, Hotel Van | | 8,800 |
| *To record the first year s depreciation for the hotel van.* | | |

Subsequent years depreciation entries would show depreciation expense of $6,600, $4,400, and $2,200.

When an asset has a long life, the computation of the denominator (the sum-of-the-years -digits) can become quite involved. There is, however, a simple formula for determining the denominator. It is:

$$\frac{n(n+1)}{2}$$ where n is the life (in years) of the asset

Given that the van has a useful life of four years, the formula works as follows:

$$\frac{4(5)}{2} = 10$$

**fyi**

General Electric is one of the few large companies that continues to use the sum-of-the-years -digits method of depreciation.

As you can see, the answer is the same as if you had added the years digits (4 + 3 + 2 + 1). If an asset has a 10-year life, the sum of the years digits is:

$$\frac{10(11)}{2} = 55$$

The depreciation fraction in year 1 would be 10/55, in year 2, 9/55, and so on.

## A Comparison of Depreciation Methods

Now that you have been introduced to the four most common depreciation methods, we can compare them both graphically and by using the Wheeler Resorts van example. Exhibit 9-13 compares the straight-line, sum-of-the-years -digits, and declining-balance depreciation methods with regard to the relative amount of depreciation expense incurred in each year for an asset that has a five-year life. The units-of-production method is not illustrated because there would not be a standard pattern of cost allocation. Exhibit 9-14 shows the results for the Wheeler Resorts van for all four depreciation methods.

**exhibit 9-13** Comparison of Depreciation Methods

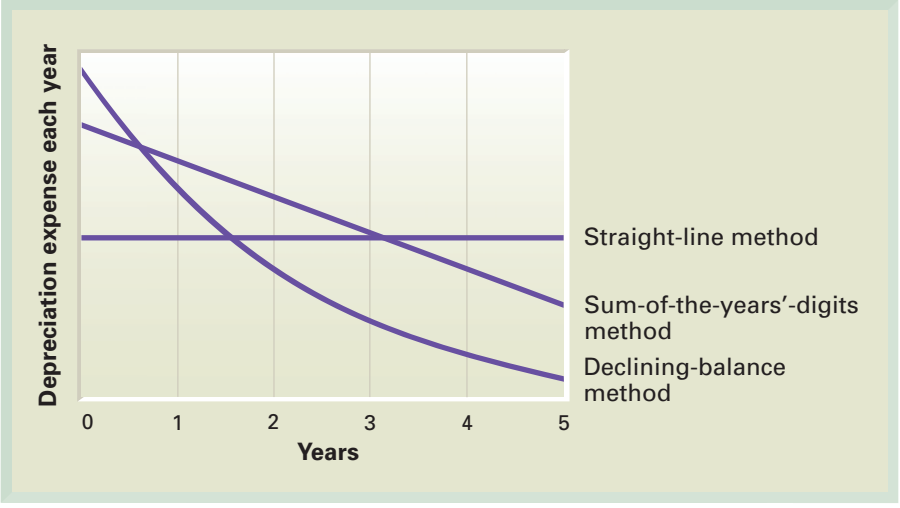


**exhibit 9-14** Comparison of Depreciation Expense Using Different Depreciation Methods

| | Straight-Line Depreciation | Units-of-Production Depreciation | DDB Depreciation | SYD Depreciation |
|---|---|---|---|---|
| Year 1 | $ 5,500 | $ 4,400 | $12,000 | $ 8,800 |
| Year 2 | 5,500 | 6,600 | 6,000 | 6,600 |
| Year 3 | 5,500 | 7,700 | 3,000 | 4,400 |
| Year 4 | 5,500 | 3,300 | 1,000 | 2,200 |
| Totals | $22,000 | $22,000 | $22,000 | $22,000 |

## to summarize

Two depreciation methods that allow for more depreciation expense in the early years of an asset s life are the declining-balance and the sum-of-the-years -digits methods. The declining-balance method involves multiplying the asset s declining book value by a fixed rate that is a multiple of the straight-line rate. Sum-of-the-years -digits depreciation is computed by multiplying (cost − salvage value) by a declining ratio based on the number of years in the asset s estimated life.

**11**

Account for changes in depreciation estimates.

## CHANGES IN DEPRECIATION ESTIMATES

As mentioned earlier in the chapter, useful lives and salvage values are only estimates. Wheeler Resorts van, for example, was assumed to have a useful life of four years and a salvage value of $2,000. In reality, the van s life and salvage value may be different from the original estimates. If, after three years, Wheeler realizes that the van will last another three years and that the salvage value will be $3,000 instead of $2,000, the accountant would need to calculate a new depreciation expense for the remaining three years. Using straight-line depreciation, the calculations would be as follows:

| | Formula | Calculation | Total Depreciation |
|---|---|---|---|
| Annual depreciation for the first three years | $\frac{\text{Cost} - \text{Salvage value}}{\text{Estimated useful life}} = \text{Depreciation expense}$ | $\frac{\$24{,}000 - \$2{,}000}{4 \text{ years}} = \$5{,}500$ | $16,500 |
| Book value after three years | Cost − Accumulated depreciation to date = Book value | $24,000 − $16,500 = $7,500 | |
| Annual depreciation for last three years (based on new total life of six years and new salvage value of $3,000) | $\frac{\text{Book value} - \text{Salvage value}}{\text{Remaining useful life}} = \text{Depreciation expense}$ | $\frac{\$7{,}500 - \$3{,}000}{3 \text{ years}} = \$1{,}500$ | 4,500 |
| Total depreciation | | | $21,000 |

**exhibit 9-15** Depreciation Schedule When There Is a Change in Estimate

| | Annual Depreciation Expense | Accumulated Depreciation | Book Value |
|---|---|---|---|
| Acquisition date | | | $24,000 |
| Year 1 | $ 5,500 | $ 5,500 | 18,500 |
| Year 2 | 5,500 | 11,000 | 13,000 |
| Year 3 | 5,500 | 16,500 | 7,500 |
| Change | | | |
| Year 4 | 1,500 | 18,000 | 6,000 |
| Year 5 | 1,500 | 19,500 | 4,500 |
| Year 6 | 1,500 | 21,000 | 3,000 |
| Total | $21,000 | | |

**fyi**

To illustrate the uncertainty about depreciation life estimates, consider that **BOEING** 727 airplanes are lasting a lot longer than initially expected. The first Boeing 727 was delivered in 1963; the last was built in 1984. As of December 1998, almost 1,500 of the 1,831 727s delivered were still in service.

The example shows that a change in the estimate of useful life or salvage value does not require a modification of the depreciation expense already taken. New information affects depreciation only in future years. Exhibit 9-15 shows the revised depreciation expense. Similar calculations, although more complex, would apply if either the sum-of-the-years -digits or the declining-balance depreciation method had been used.

## to summarize

Because depreciation is only an estimate, changes in estimates of useful life or salvage value may be required as new information becomes available. When there is a change in estimate, past periods depreciation amounts remain the same. The only change is in future years depreciation where the remaining book value is allocated over the new life (in the case of a change in useful life), or the difference between the book value and the new salvage value is allocated over the remaining life (in the case of a change in salvage value).

## review of learning objectives

**1 Identify the two major categories of long-term operating assets: property, plant, and equipment and intangible assets.** There are two major types of operating assets. Property, plant, and equipment are long-lived, tangible assets acquired for use in a business. This category includes land, buildings, machinery, equipment, and furniture. Intangible assets are long-lived assets used in a business, but they have no physical substance. Common intangible assets are patents, licenses, franchises, and goodwill.

**2 Understand the factors important in deciding whether to acquire a long-term operating asset.** The value of long-term operating assets stems from the fact that they help companies generate future cash flows. Capital budgeting is the name given to the process whereby decisions are made about acquiring long-term operating assets. Capital budgeting involves comparing the cost of the asset to the value of the expected cash inflows, after adjusting for the time value of money. The value of a long-term operating asset can disappear

instantly if events lower the expectations about the future cash flows generated by the asset.

**3** **Record the acquisition of property, plant, and equipment through a simple purchase as well as through a lease, by self-construction, and as part of the purchase of several assets at once.** Property, plant, and equipment may be acquired by purchase, lease, or self-construction. When purchased, the assets are recorded at cost, which includes all expenditures associated with acquiring them and getting them ready for their intended use. When these types of assets are leased, the lease agreement may be classified as an operating lease or as a capital lease. An operating lease results in a short-term use of the asset without recording the asset on the books of the user, the lessee. Instead, the lessee records only the rental expense paid each period. If the lease is for a longer term and meets the conditions of a capital lease, the lessee records the leased property as an asset and the related liability as if the property had been purchased and financed with long-term debt. The asset is recorded at the present value of the lease rental payments, which usually is equivalent to the current market value or the cash equivalent price. When a company constructs an asset for its own use, the recorded cost includes building materials, labor, a reasonable allocation of general administrative costs, and capitalized interest equal to the amount of interest that could have been avoided if the construction expenditures had been used to repay loans.

If two or more assets are acquired in a basket purchase, the relative fair market value method is used to assign costs to individual assets. If one company buys all the assets of another company, the excess of the purchase price over the aggregate fair value of the acquired net assets is recorded as goodwill, an intangible asset.

**4** **Compute straight-line and units-of-production depreciation expense for plant and equipment.** Depreciation is the process of allocating the cost of plant and equipment to expense in the periods that are benefited from the use of the asset. The two most common and simple methods of depreciation are straight-line and units-of-production.

The straight-line method is the only method that results in the same amount of depreciation for each full year. The units-of-production method allocates cost over the useful life measured in units of output or usage. Both methods require salvage value to be subtracted from the original cost in computing depreciation expense.

The units-of-production method is also used with natural resources such as coal, gravel, and timber. Depletion expense for a year is computed by first computing a depletion rate by dividing the cost assigned to the natural resource by the estimated number of remaining units to be extracted. This depletion rate is multiplied by the number of units extracted for the year to arrive at the dollar amount of depletion for the year.

**5** **Account for repairs and improvements of property, plant, and equipment.** Expenditures incurred for property, plant, and equipment after acquisition may be classified as either ordinary expenditures or capital expenditures. Since ordinary expenditures merely maintain an asset s productive capacity at the level originally projected, they are reported as repairs and maintenance expense and do not affect the asset s reported cost. For an expenditure to be classified as a capital expenditure, it must (1) increase the productive life or annual capacity of the asset, (2) be significant in amount, and (3) benefit the company over several periods. Because capital expenditures are added to the cost of an asset, they affect future depreciation, whereas ordinary expenditures are expenses of the current period.

**6** **Identify whether a long-term operating asset has suffered a decline in value and record the decline.** Impairment is the decline in a long-term operating asset s value after it is purchased. In recording an impairment loss, the recorded book value of the asset is first compared with the sum of future cash flows to be generated by the asset. Next, if the book value is lower, a loss is recognized. The amount of the loss is the difference between the book value of the asset and its fair value. According to U.S. accounting rules, increases in the value of property, plant, and equipment are not recognized.

**7** **Record the discarding and selling of property, plant, and equipment.** Property, plant, and equipment may be disposed of by discarding, selling, or exchanging. When an asset is sold, a gain is reported if the sales price exceeds the book value, or a loss is reported if the book value exceeds the sales price.

**8** **Account for the acquisition and amortization of intangible assets and understand the special difficulties associated with accounting for intangibles.** Intangible assets are rights and privileges that are long-lived, are not held for resale, have no physical substance, and usually provide competitive advantages for the owner. Common examples are patents, franchises, licenses, and goodwill. Patents acquired by purchase are recorded at cost and amortized over the shorter of their economic life or their 17-year legal life. Research and development costs incurred internally in a firm are expensed as incurred even if they may result in the development of a legal patent. Franchises and licenses are exclusive rights to perform services or sell a product in certain geographic areas. The cost of acquiring a franchise or license is recorded as an asset, which is then amortized over its useful or legal life, whichever is shorter. Goodwill occurs when a business is purchased and the purchase price exceeds the total value of the identifiable assets less outstanding liabilities assumed. The excess purchase price that cannot be allocated to specific assets is called goodwill and is recorded as an intangible asset. Goodwill is amortized as an expense over its expected life, not to exceed 40 years. Because it is often difficult to trace the development of

specific intangible assets to specific costs, it is difficult to reliably recognize the assets in the financial statements.

**9 Use the fixed asset turnover ratio as a measure of how efficiently a company is using its property, plant, and equipment.** Fixed asset turnover is computed as sales divided by average property, plant, and equipment (fixed assets) and is interpreted as the number of dollars in sales generated by each dollar of fixed assets. Fixed asset turnover ratios can be meaningfully compared only between firms in similar industries.

expanded material

**10 Compute declining-balance and sum-of-the-years -digits depreciation expense for plant and equipment.** The two most common accelerated depreciation methods are declining-balance and sum-of-the-years -digits. The declining- balance method is different from straight-line, units-of-production, and sum-of-the-years -digits depreciation. The salvage value is ignored in the declining-balance method in the annual computation, but the book value of the asset cannot be less than the salvage value at the end of any reporting year. With declining-balance, the depreciation rate is calculated by multiplying a desired factor (such as 1.5 or 2.0) by the straight-line depreciation rate. This rate is then multiplied times the book value to determine annual depreciation expense. The declining-balance method is the basis for the MACRS income tax depreciation calculations in the United States. With sum-of-the-years -digits depreciation, a ratio, computed by dividing the number of years of estimated life remaining at the beginning of the year by the sum of the years of the asset s life, is multiplied by the book value (cost − salvage value) of the asset to determine annual depreciation expense.

**11 Account for changes in depreciation estimates.** Useful lives and salvage values of plant and equipment are only estimates and may need adjustment during an asset s life. Changes in estimates of useful life or salvage value do not require modification of depreciation expense already taken. Rather, only future depreciation amounts are affected by changes in estimates.

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amortization 416
basket purchase 403
book value 405
capital budgeting 397
capital lease 400
capitalized interest 402
depletion 409
depreciation 405
fixed asset turnover 420
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goodwill 404
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## review problems

**Property, Plant, and Equipment**

Swift Motor Lines is a trucking company that hauls crude oil in the Rocky Mountain states. It currently has 20 trucks. The following information relates to a single truck:

a. Date truck was purchased, July 1, 2000.
b. Cost of truck:

| | |
|---|---|
| Truck | $125,000 |
| Paint job | 3,000 |
| Sales tax | 7,000 |

c. Estimated useful life of truck, 120,000 miles.
d. Estimated salvage value of truck, $27,000.
e. 2002 expenditures on truck:
   (1) $6,000 on new tires and regular maintenance.
   (2) On January 1, spent $44,000 to completely rework the truck s engine; increased the total life to 200,000 miles but left expected salvage value unchanged.
f. Miles driven:

| | |
|---|---|
| 2000 | 11,000 |
| 2001 | 24,000 |
| 2002 (after reworking of engine) | 20,000 |
| 2003 | 14,000 |

*Required:* Record journal entries to account for the following. (Use the units-of-production depreciation method.)

1. The purchase of the truck.
2. The expenditures on the truck during 2002.
3. Depreciation expense for:
   a. 2000
   b. 2001
   c. 2002
   d. 2003

**Solution**

**1. Truck Purchase**

The cost of the truck includes both the amount paid for it and all costs incurred to get it in working condition. In this case, the cost includes both the paint job and the sales tax. Thus, the entry to record the purchase is:

| | | |
|---|---|---|
| Truck | 135,000 | |
| Cash | | 135,000 |
| *Purchased truck for cash.* | | |

**2. Expenditures**

The expenditure of $6,000 is an ordinary expenditure and is expensed in the current year. The engine overhaul is capitalized. The entries are:

| | | |
|---|---|---|
| Repairs and Maintenance Expense | 6,000 | |
| Cash | | 6,000 |
| *Recorded purchase of new tires and regular maintenance on truck.* | | |
| Truck | 44,000 | |
| Cash | | 44,000 |
| *Recorded major overhaul to truck s engine.* | | |

**3. Depreciation Expense**

The formula for units-of-production depreciation on the truck is:

$$\frac{\text{Cost} - \text{Salvage value}}{\text{Total miles expected to be driven}} \times \text{Number of miles driven in any year} = \text{Depreciation expense}$$

Journal entries and calculations are as follows:

a. 2000:

| | | |
|---|---|---|
| Depreciation Expense | 9,900 | |
| Accumulated Depreciation, Truck | | 9,900 |
| *Recorded depreciation expense for 2000.* | | |

$$\frac{\$135{,}000 - \$27{,}000}{120{,}000 \text{ miles}} \times 11{,}000 \text{ miles} = \$9{,}900 \text{ or } \$0.90 \text{ per mile} \times 11{,}000 \text{ miles}$$

b. 2001:

| | | |
|---|---|---|
| Depreciation Expense | 21,600 | |
| Accumulated Depreciation, Truck | | 21,600 |
| *Recorded depreciation expense for 2001.* | | |

$0.90 × 24,000 miles = $21,600

c. 2002:

| | | |
|---|---|---|
| Depreciation Expense | 14,600 | |
| Accumulated Depreciation, Truck | | 14,600 |
| *Recorded depreciation expense for 2002.* | | |

$$\frac{\$135{,}000 - \$9{,}900 - \$21{,}600 + \$44{,}000 - \$27{,}000}{165{,}000 \text{ miles}} \times 20{,}000 \text{ miles} = \$14{,}600 \text{ or } \$0.73^{*} \text{ per mile} \times 20{,}000 \text{ miles}$$

(200,000 − 11,000 − 24,000)

*Rounded to the nearest cent.

d. 2003:

| | | |
|---|---|---|
| Depreciation Expense | 10,220 | |
| Accumulated Depreciation, Truck | | 10,220 |
| *Recorded depreciation expense for 2003.* | | |

$0.73 × 14,000 miles = $10,220

## expanded material

**Property, Plant, and Equipment**

Swift Motor Lines is a trucking company that hauls crude oil in the Rocky Mountain states. It currently has 20 trucks. The following information relates to a single truck:

a. Date truck was purchased, July 1, 2000.
b. Cost of truck:

| | |
|---|---|
| Truck | $125,000 |
| Paint job | 3,000 |
| Sales tax | 7,000 |

c. Estimated useful life of truck, eight years.
d. Estimated salvage value of truck, $27,000
e. 2002 expenditures on truck:
   (1) $6,000 on new tires and regular maintenance.
   (2) On January 1, spent $44,000 to completely rework the truck s engine. As a result of the engine work, the remaining life of the truck is increased to nine years, but the expected salvage value remains the same.

*Required:* Record journal entries to account for the following. (Use the sum-of-the-years -digits depreciation method.)

1. The purchase of the truck.
2. Depreciation expense for:
   a. 2000
   b. 2001
   c. 2002
3. The expenditures on the truck during 2002.

**Solution**

**1. Truck Purchase**

The cost of the truck includes both the amount paid for it and all costs incurred to get it in working condition. In this case, the cost includes both the paint job and the sales tax. Thus, the entry to record the purchase is:

| | | |
|---|---|---|
| Truck | 135,000 | |
| Cash | | 135,000 |
| *Purchased truck for cash.* | | |

**2. Depreciation Expense**

The formula for sum-of-the-years -digits depreciation on the truck is:

$$\frac{\text{Number of years of life remaining at beginning of year}}{\text{Sum-of-the-years -digits}} \times (\text{Cost} - \text{Salvage value}) = \text{Depreciation expense}$$

Depreciation for the three years is calculated as follows:

$$2000: \frac{8}{36} \times (\$135{,}000 - \$27{,}000) = \$24{,}000;\ \$24{,}000 \times \text{‰ year} = \$12{,}000$$

$$2001: \frac{7.5}{36} \times (\$135{,}000 - \$27{,}000) = \$22{,}500$$

$$2002: \frac{9}{45} \times [(\$135{,}000 + \$44{,}000) - (\$12{,}000 + \$22{,}500) - \$27{,}000] = \$23{,}500$$

The depreciation entries are:

a. 2000:

| | | |
|---|---|---|
| Depreciation Expense | 12,000 | |
| Accumulated Depreciation, Truck | | 12,000 |
| *Recorded depreciation expense for 2000.* | | |

b. 2001:

| | | |
|---|---|---|
| Depreciation Expense | 22,500 | |
| Accumulated Depreciation, Truck | | 22,500 |
| *Recorded depreciation expense for 2001.* | | |

c. 2002:

| | | |
|---|---|---|
| Depreciation Expense | 23,500 | |
| Accumulated Depreciation, Truck | | 23,500 |
| *Recorded depreciation expense for 2002.* | | |

**3. Expenditures**

The first expenditure of $6,000 is an ordinary expenditure and is expensed in the current year. The $44,000 expenditure is capitalized because it lengthens the truck s life. The entries are:

| | | |
|---|---|---|
| Repairs and Maintenance Expense | 6,000 | |
| Cash | | 6,000 |
| *Recorded purchase of new tires and regular maintenance on truck.* | | |
| Truck | 44,000 | |
| Cash | | 44,000 |
| *Recorded major overhaul of truck engine.* | | |

## discussion questions

1. What are the major characteristics of property, plant, and equipment?
2. When buying a long-term asset such as a building or piece of equipment, the time value of money must be considered. With respect to time value, it is often said that the last payment (say, 20 years in the future) doesn t cost as much as the next payment today. Explain.
3. Why are expenditures other than the net purchase price included in the cost of an asset?
4. Why would a company include leased assets in the property, plant, and equipment section of its balance sheet when the assets are owned by another entity?
5. A company that borrows money to construct its own building generally should include the interest paid on the loan during the construction period in the cost of the building. Why?
6. Why are fair market values used to determine the cost of operating assets acquired in a basket purchase?
7. Companies usually depreciate assets such as buildings even though those assets may be increasing in value. Why?
8. How does the company accountant decide whether an expenditure should be capitalized or expensed?
9. If a firm is uncertain whether an expenditure will benefit one or more than one accounting period, or whether it will increase the capacity or useful life of an operational asset, most firms will expense rather than capitalize the expenditure. Why?
10. Sometimes long-term assets experience sudden dramatic decreases in value. For example, a waste dump might suddenly be constructed next to an office building. When such impairment of value occurs, should the decrease in value be recognized immediately, or should the same amount of depreciation expense be recognized as in past years?
11. Accountants in other countries sometimes write up the recorded amounts of long-term assets when their values increase. Why are U.S. accountants reluctant to increase the recorded value of property, plant, and equipment when their value increases?
12. Why is it common to have a gain or loss on the disposal of a long-term operating asset? Is it true that if the useful life and salvage value of an asset could be known with certainty and were realized, there would never be such a gain or loss?
13. When recording the disposal of a long-term operating asset, why is it necessary to debit the accumulated depreciation of the old asset?
14. Why are intangible assets considered assets although they have no physical substance?
15. Goodwill can be recorded only when a business is purchased. Does this result in similar businesses having incomparable financial statements?
16. How is fixed asset turnover calculated, and what does the resulting ratio value mean?

### expanded material

17. Which of the depreciation methods discussed in this chapter will usually result in the highest net income in the early years of an asset s life?
18. How does the declining-balance method of depreciation differ from other methods of depreciation?
19. Modified accelerated cost recovery system (MACRS) depreciation is allowed by the IRS but usually is not used in financial reporting. Why do you think this is the case?
20. When changing the estimate of the useful life of an asset, should depreciation expense for all the previous years be recalculated? If not, how do you account for a change in this estimate?
21. Why is it often necessary to recalculate the depletion rate for natural resources?

## discussion cases

### CASE 9-1 INTANGIBLE ASSETS

Renford Company owns two restaurants. One, located in Tacoma, was purchased from a previous owner and the other, located in Seattle, was built by Renford Company after purchasing the franchise. The restaurant in Seattle has a $20,000 unamortized franchise on the books. (The franchise originally cost $200,000 and is being amortized over 10 years.) The restaurant was built nine years ago. The Tacoma restaurant was purchased last year and has goodwill of $550,000

on the books. As it turns out, the Seattle restaurant does twice as much business as the Tacoma restaurant and is much more profitable. The Seattle restaurant is in a prime location, and business keeps increasing each year. The Tacoma restaurant does about the same amount of business each year, and it doesn t look as if it will ever do any better. Does it make sense to you to have goodwill on the books of the less profitable restaurant? Should Renford record goodwill on the books of the Seattle restaurant, or should it write off the goodwill on the Tacoma restaurant s books (which is being amortized over a 20-year period)?

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CASE 9-2

### STRAIGHT-LINE VERSUS ACCELERATED DEPRECIATION

Dennis Company currently depreciates its assets using the straight-line method for both tax and financial accounting. Total depreciation expense for this year will be $250,000 using straight-line depreciation. A consultant has just advised the company that it should use accelerated depreciation methods for both tax and financial accounting because paying lower taxes is better than recognizing higher income. Using accelerated depreciation methods, total depreciation expense this year would be $400,000. The company has an effective tax rate of 40%. Do you agree with the consultant? Why or why not?

## exercises

EXERCISE 9-1

### ACQUISITION DECISION

Johnson Company is considering acquiring a new airplane. It has looked at two financing options. The first is to lease the airplane for 10 years with lease payments of $70,000 each year. The second is to purchase the airplane, making a down payment of $250,000 and annual payments of $40,000 for 10 years. If the present value of the two financing options is the same, what other factors must be considered in deciding whether to purchase or to lease?

EXERCISE 9-2

### ACCOUNTING FOR THE ACQUISITION OF A LONG-TERM ASSET

Chong Lai Company acquired a new machine in order to expand its productive capacity. The costs associated with the machine purchase were as follows:

| | |
|---|---|
| Purchase price | $10,000 |
| Installation costs | 500 |
| Cost of initial testing | 600 |
| Sales tax | 750 |

1. Make the journal entry to record the acquisition of the machine. Assume that all costs were paid in cash.
2. Make the journal entry to record the acquisition of the machine. Assume that Chong Lai Company signed a note payable for the $10,000 purchase price and paid the remaining costs in cash.

EXERCISE 9-3

### COMPUTING ASSET COST AND DEPRECIATION EXPENSE

Antique Furniture Company decided to purchase a new furniture-polishing machine for its store in New York City. After a long search, it found the appropriate polisher in Chicago. The machine costs $75,000 and has an estimated 10-year life and no salvage value. Antique Furniture Company made the following additional expenditures with respect to this purchase:

| | |
|---|---|
| Sales tax | $4,000 |
| Delivery costs (FOB shipping point) | 1,500 |
| Installation costs | 2,200 |
| Painting of machine to match the decor | 300 |

1. What is the cost of the machine to Antique Furniture Company?
2. What is the amount of the first full year s depreciation if Antique uses the straight-line method?

## EXERCISE 9-4 ACQUISITION AND DEPRECIATION OF ASSETS

Western Oil Company, which prepares financial statements on a calendar-year basis, purchased new drilling equipment on July 1, 2003, using check numbers 1015 and 1016. The check totals are shown here, along with a breakdown of the charges.

| | |
|---|---|
| 1015 (Payee Oil Equipment, Inc.): | |
| Cost of drilling equipment | $ 75,000 |
| Cost of cement platform | 25,000 |
| Installation charges | 13,000 |
| Total | $113,000 |
| 1016 (Payee Red Ball Freight): | |
| Freight costs for drilling equipment | $ 2,000 |

Assume that the estimated life of the drilling equipment is 10 years and its salvage value is $5,000.

1. Record the disbursements on July 1, 2003, assuming that no entry had been recorded for the drilling equipment.
2. Disregarding the information given about the two checks, assume that the drilling equipment was recorded at a total cost of $95,000. Calculate the depreciation expense for 2003 using the straight-line method.

## EXERCISE 9-5 ACCOUNTING FOR LEASED ASSETS

On January 1, 2003, Hartmeyer Company leased a fax machine with a laser printer from Teleproducts, Inc. The five-year lease is noncancelable and requires monthly payments of $150 at the end of each month, with the first payment due on January 31, 2003. At the end of five years, Hartmeyer will own the equipment. The present value of the lease payments at the beginning of the lease is determined to be $6,740.

1. Prepare journal entries to record:
   a. The lease agreement on January 1, 2003.
   b. The first lease payment on January 31, 2003, assuming that $68 of the $150 payment is interest.
2. Now assume that the lease expires after one year at which time a new lease can be negotiated or Hartmeyer can return the equipment to Teleproducts. Prepare any journal entries relating to the lease that would be required on January 1 and January 31, 2003.

## EXERCISE 9-6 INTEREST CAPITALIZATION

Litton Company is constructing a new office building. Costs of the building are as follows:

| | |
|---|---|
| Wages paid to construction workers | $185,000 |
| Building materials purchased | 456,000 |
| Interest expense on construction loan | 13,800 |
| Interest expense on mortgage loan during the first year subsequent to the building s completion | 22,000 |

Given the above costs, at what amount should the building be recorded in the accounting records?

## EXERCISE 9-7 ACCOUNTING FOR THE ACQUISITION OF ASSETS BASKET PURCHASE

Sealise Corporation purchased land, a building, and equipment for a total cost of $450,000. After the purchase, the property was appraised. Fair market values were determined to be $120,000 for the land, $280,000 for the building, and $80,000 for the equipment. Given these appraisals, record the purchase of the property by Sealise Corporation.

## EXERCISE 9-8 DEPRECIATION CALCULATIONS

Luric Company purchased a new car on July 1, 2002, for $15,000. The estimated life of the car was four years or 104,000 miles, and its salvage value was estimated to be $2,000. The car was driven 9,000 miles in 2002 and 27,000 miles in 2003.

1. Compute the amount of depreciation expense for 2002 and 2003 using the following methods:
   a. Straight-line.
   b. Units-of-production.
2. Which depreciation method more closely reflects the used-up service potential of the car? Explain.

## EXERCISE 9-9 DEPRECIATION CALCULATIONS

Denver Hardware Company has a giant paint mixer that cost $31,500 plus $400 to install. The estimated salvage value of the paint mixer at the end of its useful life in 15 years is estimated to be $1,900. Denver estimates that the machine can mix 850,000 cans of paint during its lifetime. Compute the second full year s depreciation expense, using the following methods:

1. Straight-line.
2. Units-of-production, assuming that the machine mixes 51,000 cans of paint during the second year.

## EXERCISE 9-10 ACQUISITION AND IMPROVEMENT OF ASSETS

Prepare entries in the books of Sanmara, Inc., to reflect the following. (Assume cash transactions.)

1. Purchased a lathing machine to be used by the firm in its production process.

| | |
|---|---|
| Invoice price | $45,000 |
| Cash discount taken | 900 |
| Installation costs | 1,200 |
| Sales tax on machine | 1,800 |

2. Performed normal periodic maintenance on the lathing machine at a cost of $200.
3. Added to the lathing machine a governor costing $400, which is expected to increase the machine s useful life.

## EXERCISE 9-11 ASSET IMPAIRMENT

Consider the following three independent scenarios:

| | 1 | 2 | 3 |
|---|---|---|---|
| Original cost of asset | $1,400 | $1,400 | $1,400 |
| Accumulated depreciation | 400 | 400 | 400 |
| Sum of future cash flows | 1,500 | 1,500 | 900 |
| Fair value of the asset | 1,100 | 800 | 800 |

1. For each of the three scenarios, answer the following questions:
   a. Is the asset impaired?
   b. At what amount (net of accumulated depreciation) should the asset be reported?
2. Make the journal entry required in Scenario 3.

## EXERCISE 9-12

### ASSET IMPAIRMENT

In 1998, Rhode Company purchased land and a building at a cost of $800,000, of which $200,000 was allocated to the land and $600,000 was allocated to the building. As of December 31, 2002, the accounting records related to these assets were as follows:

| | |
|---|---|
| Land | $200,000 |
| Building | 600,000 |
| Accumulated Depreciation, Building | 100,000 |

On January 1, 2003, it is determined that there is toxic waste under the building and the future cash flows associated with the land and building are less than the recorded total book value for those two assets. The fair value of the land and building together is now only $100,000, of which $40,000 is land and $60,000 is the building. How should this impairment in value be recognized? Make the entry on January 1, 2003, to record the impairment of the land and building.

## EXERCISE 9-13

### ACCOUNTING FOR THE DISPOSAL OF ASSETS

Zimer Concrete Company has a truck that it wants to sell. The truck had an original cost of $60,000, was purchased three years ago, and was expected to have a useful life of five years with no salvage value.

Using straight-line depreciation, and assuming that depreciation expense for three full years has been recorded, prepare journal entries to record the disposal of the truck under each of the following independent conditions:

1. Zimer Concrete Company sells the truck for $25,000 cash.
2. Zimer Concrete Company sells the truck for $20,000 cash.
3. The old truck is wrecked and Zimer Concrete Company hauls it to the junkyard.

## EXERCISE 9-14

### DISPOSAL OF AN ASSET

Honey Bee Company purchased a machine for $91,000. The machine has an estimated useful life of seven years and a salvage value of $7,000. Journalize the disposal of the machine under each of the following conditions. (Assume straight-line depreciation.)

1. Sold the machine for $72,000 cash after two years.
2. Sold the machine for $28,000 cash after five years.

## EXERCISE 9-15

### ACCOUNTING FOR INTANGIBLE ASSETS

Gaylord Research, Inc., has the following intangible assets:

| Asset | Cost | Date Purchased | Expected Useful or Legal Life |
|---|---|---|---|
| Goodwill | $ 16,000 | January 1, 1994 | 20 years |
| Patent | 136,000 | January 1, 1996 | 17 years |
| Franchise | 180,000 | January 1, 1997 | 10 years |

1. Record the amortization expense for each of these intangible assets for 2003.
2. Prepare the intangible assets section of the balance sheet for Gaylord Research, Inc., as of December 31, 2003.

## EXERCISE 9-16

### INTANGIBLE ASSETS

On January 1, 2002, Landon Company purchased a franchise to operate a regionally owned fast-food restaurant for a cost of $250,000. On July 1, 2002, Landon Company purchased another existing business in a nearby city for a total cost of $750,000. The market value of the land, building, and equipment, and other tangible assets was $550,000. The excess $200,000 was recorded as goodwill, to be amortized over a 20-year period.

Assuming Landon Company amortizes franchises over a 10-year period, record the following:

1. The purchase of the franchise on January 1, 2002.
2. The amortization of the franchise and goodwill at December 31, 2002.
3. The amortization of the franchise and goodwill at December 31, 2003.

## EXERCISE 9-17

### COMPUTING GOODWILL

Stringtown Company purchased Stansbury Island Manufacturing for $1,800,000 cash. The book value and fair value of the assets of Stansbury Island as of the date of the acquisition are listed below:

| | Book Value | Market Value |
|---|---|---|
| Cash | $ 30,000 | $ 30,000 |
| Accounts receivable | 300,000 | 300,000 |
| Inventory | 350,000 | 600,000 |
| Property, plant, and equipment | 500,000 | 900,000 |
| Totals | $1,180,000 | $1,830,000 |

In addition, Stansbury Island had liabilities totaling $400,000 at the time of the acquisition.

1. At what amounts will the individual assets of Stansbury Island be recorded on the books of Stringtown, the acquiring company?
2. How will Stringtown account for the liabilities of Stansbury Island?
3. How much goodwill will be recorded as part of this acquisition?

## EXERCISE 9-18

### FIXED ASSET TURNOVER

Handy Corner Stores reported the following asset values in 2002 and 2003:

| | 2003 | 2002 |
|---|---|---|
| Cash | $ 30,000 | $ 20,000 |
| Accounts receivable | 400,000 | 300,000 |
| Inventory | 600,000 | 350,000 |
| Land | 200,000 | 150,000 |
| Buildings | 600,000 | 500,000 |
| Equipment | 300,000 | 200,000 |

In addition, Handy Corner had sales of $2,000,000 in 2003. Cost of goods sold for the year was $1,500,000.

Compute Handy Corner s fixed asset turnover ratio for 2003.

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## EXERCISE 9-19

### ACQUISITION AND DEPRECIATION OF ASSETS

Montana Oil Company, which prepares financial statements on a calendar-year basis, purchased new drilling equipment on July 1, 2003. A breakdown of the cost follows:

| | |
|---|---|
| Cost of drilling equipment | $ 75,000 |
| Cost of cement platform | 25,000 |
| Installation charges | 13,000 |
| Freight costs for drilling equipment | 2,000 |
| Total | $115,000 |

Assuming that the estimated life of the drilling equipment is 10 years and its salvage value is $5,000:

1. Record the purchase on July 1, 2003.
2. Assume that the drilling equipment was recorded at a total cost of $95,000. Calculate the depreciation expense for 2003 using the following methods:
   a. Sum-of-the-years -digits.
   b. Double-declining-balance.
   c. 150% declining-balance.
3. Prepare the journal entry to record the depreciation for 2003 in accordance with 2(a).

## EXERCISE 9-20 ACQUISITION AND DEPRECIATION

At the beginning of 2003, Lowham s Guest Ranch constructed a new walk-in freezer that had a useful life of 10 years. At the end of 10 years, the motor could be salvaged for $2,000. In addition to construction costs that totaled $10,000, the following costs were incurred:

| | |
|---|---|
| Sales taxes on components | $1,250 |
| Delivery costs | 800 |
| Installation of motor | 200 |
| Painting of both interior and exterior of freezer | 100 |

1. What is the cost of the walk-in freezer to Lowham s Guest Ranch?
2. Compute the amount of depreciation to be taken in the first year assuming Lowham s Guest Ranch uses the
   a. Double-declining-balance method.
   b. Sum-of-the-years -digits method.

## EXERCISE 9-21 DEPRECIATION COMPUTATIONS

Techno Company purchases a $400,000 piece of equipment on January 2, 2001, for use in its manufacturing process. The equipment s estimated useful life is 10 years with no salvage value. Techno uses 150% declining-balance depreciation for all its equipment.

1. Compute the depreciation expense for 2001, 2002, and 2003.
2. Compute the book value of the equipment on December 31, 2003.

## EXERCISE 9-22 DEPRECIATION CALCULATIONS

The University of Northern Utah purchased a new van on January 1, 2002, for $30,000. The estimated life of the van was five years or 95,000 miles, and its salvage value was estimated to be $2,000. Compute the amount of depreciation expense for 2002, 2003, and 2004 using the following methods:

1. Double-declining-balance.
2. 175% declining-balance.
3. Sum-of-the-years -digits.

## EXERCISE 9-23 DEPRECIATION CALCULATIONS

On January 1, 2002, MAC Corporation purchased a machine for $60,000. The machine cost $800 to deliver and $2,000 to install. At the end of 10 years, MAC expects to sell the machine for $2,000. Compute depreciation expense for 2002 and 2003 using the following methods:

1. Double-declining-balance.
2. 150% declining-balance.
3. Sum-of-the-years -digits.

## EXERCISE 9-24 ACCOUNTING FOR NATURAL RESOURCES

On January 1, 2002, Castle Investment Corporation purchased a coal mine for cash, having taken into consideration the favorable tax consequences and the inevitable energy crunch in

the future. Castle paid $800,000 for the mine. Shortly before the purchase, an engineer estimated that there were 80,000 tons of coal in the mine.

1. Record the purchase of the mine on January 1, 2002.
2. Record the depletion expense for 2002, assuming that 20,000 tons of coal were mined during the year.
3. Assume that on January 1, 2003, the company received a new estimate that the mine now contained 120,000 tons of coal. Record the entry (if any) to show the change in estimate.
4. Record the depletion expense for 2003, assuming that another 20,000 tons of coal were mined.

## EXERCISE 9-25 CHANGE IN ESTIMATED USEFUL LIFE

On January 1, 2001, Landon Excavation Company purchased a new bulldozer for $120,000. The equipment had an estimated useful life of 10 years and an estimated residual value of $10,000. On January 1, 2003, Landon determined that the bulldozer would have a total useful life of only 8 years instead of 10 years with no change in residual value. Landon uses straight-line depreciation.

Compute depreciation expense on this bulldozer for 2001, 2002, and 2003.

# problems

## PROBLEM 9-1 ACQUISITION, DEPRECIATION, AND DISPOSAL OF ASSETS

On January 2, 2003, Scott Company purchased a building and land for $440,000. The most recent appraisal values for the building and the land are $360,000 and $120,000, respectively. The building has an estimated useful life of 20 years and a salvage value of $10,000.

*Required:*

1. Assuming cash transactions and straight-line depreciation, prepare journal entries to record:
   a. Purchase of the building and land on January 2, 2003.
   b. Depreciation expense on December 31, 2003.
2. Assume that after three years the property (land and building) was sold for $350,000. Prepare the journal entry to record the sale.

## PROBLEM 9-2 PURCHASING PROPERTY, PLANT, AND EQUIPMENT

Jordon Company is considering replacing its automated stamping machine. The machine is specialized and very expensive. Jordon is considering three acquisition alternatives. The first is to lease a machine for 10 years at $1 million per year, after which time Jordon can buy the machine for $1 million. The second alternative is to pay cash for the machine at a cost of $7 million. The third alternative is to make a down payment of $3 million, followed by 10 annual payments of $550,000. The company is trying to decide which alternative to select.

*Required:*

1. Assuming the present value of the lease payments is $7.2 million and the present value of the 10 loan payments of $550,000 is $4.1 million, determine which alternative Jordon should choose.
2. **Interpretive Question:** Your decision in part (1) was based only on financial factors. What other qualitative issues might influence your decision?

## PROBLEM 9-3 ACQUISITION OF AN ASSET

Pacific Printing Company purchased a new printing press. The invoice price was $158,500. The company paid for the press within 30 days, so it was allowed a 3% discount. The freight cost for delivering the press was $2,500. A premium of $900 was paid for a special insurance policy to cover the transportation of the press. The company spent $2,800 to install the press and an additional $400 in start-up costs to get the press ready for regular production.

*Required:*

1. At what amount should the press be recorded as an asset?
2. What additional information must be known before the depreciation expense for the first year of operation of the new press can be computed?
3. **Interpretive Question:** What criterion is used to determine whether the start-up costs of $400 are included in the cost of the asset? Explain.

## PROBLEM 9-4 ACCOUNTING FOR LEASED ASSETS

On January 2, 2003, Cameron Company contracted to lease a computer on a noncancelable basis for five years at an annual rental of $63,000, payable at the end of each year. The computer has an estimated economic life of six years. There is no bargain purchase option, and the computer will be returned to the lessor at the end of the five-year term of the lease. At the beginning of the lease, the computer has a fair market value of $240,000, and the present value of the lease payments equals $238,820.

*Required:*

1. Is this a capital lease or an operating lease? Explain.
2. Assuming that the lease is an operating lease, prepare the journal entries for Cameron Company for 2003.
3. Assuming that the lease is a capital lease, prepare the journal entries for Cameron Company for 2003. Assume the lease payment at the end of 2003 includes interest of $23,882.

## PROBLEM 9-5 ACCOUNTING FOR LEASED ASSETS

The board of directors of Swogen Company authorized the president to lease a corporate jet to facilitate her travels to domestic and international subsidiaries of the company. After extensive investigation of the alternatives, the company agreed to lease a jet for $300,548 each year for five years, payable at the end of each year. Title to the jet will pass to Swogen Company at the end of five years with no further payments required. The lease agreement starts on January 2, 2003. The jet has an economic life of eight years. The lease contract is noncancelable and contains an interest rate of 8%, resulting in a present value of the lease payments of $1,200,000 as of January 2, 2003.

*Required:*

1. Does this lease contract meet the requirements to be accounted for as a capital lease? Why or why not?
2. Assuming that the lease contract is to be accounted for as a capital lease, prepare the journal entries for Swogen Company for 2003. Interest included in the first payment is $96,000.

## PROBLEM 9-6 INTEREST CAPITALIZATION

Jennifer Cosmetics wants to construct a new building. It has three building options, as follows:

a. Hire a contractor to do all the work. Jennifer has a bid of $850,000 from a reputable contractor to complete the project.
b. Construct the building itself by taking out a construction loan of $800,000. Using this alternative, Jennifer believes materials and labor will cost $800,000, and interest on the construction loan will be calculated as follows:

$200,000 @ 12% for 9 months
$300,000 @ 12% for 6 months
$200,000 @ 12% for 3 months
$100,000 @ 12% for 1 month

*Required:*

1. What will be the recorded cost of the building under each alternative?
2. Assuming the building is depreciated over a 20-year period using straight-line depreciation with no salvage value, how much is the annual depreciation expense under each alternative?

## PROBLEM 9-7 DEPRECIATION CALCULATIONS

On January 1, VICOM Company purchased a $68,000 machine. The estimated life of the machine was five years, and the estimated salvage value was $5,000. The machine had an estimated

useful life in productive output of 75,000 units. Actual output for the first two years was: year 1, 20,000 units; year 2, 15,000 units.

*Required:*

1. Compute the amount of depreciation expense for the first year, using each of the following methods:
   a. Straight-line.
   b. Units-of-production.
2. What was the book value of the machine at the end of the first year, assuming that straight-line depreciation was used?
3. If the machine is sold at the end of the fourth year for $15,000, how much should the company report as a gain or loss (assuming straight-line depreciation)?

## PROBLEM 9-8

### PURCHASE OF MULTIPLE ASSETS FOR A SINGLE SUM

On April 1, 2003, Mission Company paid $360,000 in cash to purchase land, a building, and equipment. The appraised fair market values of the assets were as follows: land, $90,000; building, $260,000; and equipment, $50,000. The company incurred legal fees of $3,000 to determine that it would have a clear title to the land. Before the facilities could be used, Mission had to spend $2,500 to grade and landscape the land, $4,000 to put the equipment in working order, and $15,000 to renovate the building. The equipment was then estimated to have a useful life of six years with no salvage value, and the building would have a useful life of 20 years with a net salvage value of $15,000. Both the equipment and the building are to be depreciated on a straight-line basis. The company is on a calendar-year reporting basis.

*Required:*

1. Allocate the single purchase price to the individual assets acquired.
2. Prepare the journal entry to acquire the land, building, and equipment.
3. Prepare the journal entry to record the title search, landscape, put the equipment in working order, and renovate the building.
4. Prepare the journal entries on December 31, 2003, to record the depreciation on the building and the equipment.

## PROBLEM 9-9

### BASKET PURCHASE AND PARTIAL-YEAR DEPRECIATION

On April 1, 2003, Rosenberg Company purchased for $200,000 a tract of land on which was located a fully equipped factory. The following information was compiled regarding this purchase:

| | Market Value | Seller s Book Value |
|---|---|---|
| Land | $ 75,000 | $ 30,000 |
| Building | 100,000 | 75,000 |
| Equipment | 50,000 | 60,000 |
| Totals | $225,000 | $165,000 |

*Required:*

1. Prepare the journal entry to record the purchase of these assets.
2. Assume that the building is depreciated on a straight-line basis over a remaining life of 20 years and the equipment is depreciated on a straight-line basis over five years. Neither the building nor the equipment is expected to have any salvage value. Compute the depreciation expense for 2003 assuming the assets were placed in service immediately upon acquisition.

## PROBLEM 9-10

### ACQUISITION, DEPRECIATION, AND SALE OF AN ASSET

On January 2, 2001, Union Oil Company purchased a new airplane. The following costs are related to the purchase:

| | |
|---|---|
| Airplane, base price | $112,000 |
| Cash discount | 3,000 |
| Sales tax | 4,000 |
| Delivery charges | 1,000 |

*Required:*

1. Prepare the journal entry to record the payment of these items on January 2, 2001.
2. Ignore your answer to part 1 and assume that the airplane cost $90,000 and has an expected useful life of five years or 1,500 hours. The estimated salvage value is $3,000. Using units-of-production depreciation and assuming that 300 hours are flown in 2002, calculate the amount of depreciation expense to be recorded for the second year.
3. Ignore the information in parts 1 and 2 and assume that the airplane costs $90,000, that its expected useful life is five years, and that its estimated salvage value is $5,000. The company now uses the straight-line depreciation method. On January 1, 2004, the following balances are in the related accounts:

| | |
|---|---|
| Airplane | $90,000 |
| Accumulated Depreciation, Airplane | 51,000 |

Prepare the necessary journal entries to record the sale of this airplane on July 1, 2004, for $40,000.

## PROBLEM 9-11 ACQUISITION, DEPRECIATION, AND SALE OF AN ASSET

On July 1, 2003, Philip Ward bought a used pickup truck at a cost of $5,300 for use in his business. On the same day, Ward had the truck painted blue and white (his company s colors) at a cost of $800. Mr. Ward estimates the life of the truck to be three years or 40,000 miles. He further estimates that the truck will have a $450 scrap value at the end of its life, but that it will also cost him $50 to transfer the truck to the junkyard.

*Required:*

1. Record the following journal entries:
   a. July 1, 2003: Paid all bills pertaining to the truck. (No previous entries have been recorded concerning these bills.)
   b. December 31, 2003: The depreciation expense for the year, using the straight-line method.
   c. December 31, 2004: The depreciation expense for 2004, again using the straight-line method.
   d. January 2, 2005: Sold the truck for $2,600 cash.
2. What would the depreciation expense for 2003 have been if the truck had been driven 8,000 miles and the units-of-production method of depreciation had been used?
3. **Interpretive Question:** In part 1(d), there is a loss of $650. Why did this loss occur?

## PROBLEM 9-12 ACCOUNTING FOR NATURAL RESOURCES

On April 30, 2001, Lindon Oil Company purchased an oil well, with estimated reserves of 100,000 barrels of oil, for $1 million cash.

*Required:*

Prepare journal entries for the following:

1. Record the purchase of the oil well.
2. During 2001, 10,000 barrels of oil were extracted from the well. Record the depletion expense for 2001.
3. During 2002, 18,000 barrels of oil were extracted from the well. Record the depletion expense for 2002.

## PROBLEM 9-13 ASSET IMPAIRMENT

Delta Company owns plant and equipment on the island of Lagos. The cost and book value of the building are $2,800,000 and $2,400,000, respectively. Until this year, the market value of the factory was $7 million. However, a new dictator just came to power and declared martial law. As a result of the changed political status, the future cash inflows from the use of the factory are expected to be greatly reduced. Delta now believes that the output from the factory will generate cash inflows of $100,000 per year for the next 20 years. In addition, the market value of the factory building is now just $1,300,000. Delta is not sure how to account for the sudden impairment in value.

*Required:*

1. Explain how to decide whether an impairment loss is to be recognized.
2. Prepare the necessary journal entry, if any, to account for an impairment in the value of the factory.

## PROBLEM 9-14

### ACCOUNTING FOR INTANGIBLE ASSETS (GOODWILL)

On January 1, 2003, Universal Company purchased the following assets and liabilities from Grand Company for $250,000:

| | Book Value | Fair Market Value |
|---|---|---|
| Inventory | $40,000 | $ 50,000 |
| Building | 80,000 | 100,000 |
| Land | 50,000 | 60,000 |
| Accounts receivable | 20,000 | 20,000 |
| Accounts payable | (10,000) | (10,000) |

*Required:*

1. Prepare a journal entry to record the purchase of Grand by Universal.
2. Record amortization of goodwill as of December 31, 2003. (Assume a 40-year amortization period for the goodwill.)

## PROBLEM 9-15

### ACCOUNTING FOR GOODWILL

On January 1, 2003, Fishing Creek Company purchased Skull Valley Technologies for $8,800,000 cash. The book value and fair value of Skull Valley s assets as of the date of the acquisition are listed below:

| | Book Value | Market Value |
|---|---|---|
| Cash | $ 100,000 | $ 100,000 |
| Accounts receivable | 500,000 | 500,000 |
| Inventory | 950,000 | 1,200,000 |
| Property, plant, and equipment | 1,500,000 | 1,900,000 |
| Trademark | 0 | 2,000,000 |
| Totals | $3,050,000 | $5,700,000 |

In addition, Skull Valley had liabilities totaling $4,000,000 at the time of the acquisition.

*Required:*

1. At what amount will Skull Valley s trademark be recorded on the books of Fishing Creek, the acquiring company?
2. How much goodwill will be recorded as part of this acquisition?
3. How much goodwill amortization expense will Fishing Creek recognize in 2003? What assumptions are necessary to answer this question?
4. **Interpretive Question:** What was Skull Valley s recorded stockholders equity immediately before the acquisition? Under what circumstances does stockholders equity yield a poor measure of the fair value of a company?

## PROBLEM 9-16

### FIXED ASSET TURNOVER RATIO

Waystation Company reported the following asset values in 2002 and 2003:

| | 2003 | 2002 |
|---|---|---|
| Cash | $ 40,000 | $ 30,000 |
| Accounts receivable | 500,000 | 400,000 |
| Inventory | 700,000 | 500,000 |
| Land | 300,000 | 200,000 |
| Buildings | 800,000 | 600,000 |
| Equipment | 400,000 | 300,000 |

In addition, Waystation had sales of $4,000,000 in 2003. Cost of goods sold for the year was $2,500,000.

As of the end of 2002, the fair value of Waystation s total assets was $2,500,000. Of the excess of fair value over book value, $50,000 resulted because the fair value of Waystation s inventory was greater than its recorded book value. As of the end of 2003, the fair value of Waystation s total assets was $3,500,000. As of December 31, 2003, the fair value of Waystation s inventory was $100,000 greater than the inventory s recorded book value.

*Required:*

1. Compute Waystation s fixed asset turnover ratio for 2003.
2. Using the fair value of fixed assets instead of the book value of fixed assets, recompute Waystation s fixed asset turnover ratio for 2003. State any assumptions that you make.
3. **Interpretive Question:** Waystation s primary competitor is Handy Corner. Handy Corner s fixed asset turnover ratio for 2003, based on publicly available information, is 2.8 times. Is Waystation more or less efficient at using its fixed assets than is Handy Corner? Explain your answer.

## expanded material

### PROBLEM 9-17 DEPRECIATION CALCULATIONS

Springs Hardware Company has a giant paint mixer that cost $31,500 plus $400 to install. The estimated salvage value of the paint mixer at the end of its useful life in 15 years is estimated to be $1,900. Springs estimates that the machine can mix 850,000 cans of paint during its lifetime.

*Required:* Compute the second full year s depreciation expense, using the following methods:

1. Double-declining-balance.
2. Sum-of-the-years -digits.

### PROBLEM 9-18 DEPRECIATION CALCULATIONS

On January 1, Top Flight Company purchased a $68,000 machine. The estimated life of the machine was five years, and the estimated salvage value was $5,000. The machine had an estimated useful life in productive output of 75,000 units. Actual output for the first two years was: year 1, 20,000 units; year 2, 15,000 units.

*Required:*

1. Compute the amount of depreciation expense for the first year, using each of the following methods:
   a. Straight-line.
   b. Units-of-production.
   c. Sum-of-the-years -digits.
   d. Double-declining-balance.
2. What was the book value of the machine at the end of the first year, assuming that straight-line depreciation was used?
3. If the machine is sold at the end of the fourth year for $15,000, how much should the company report as a gain or loss (assuming straight-line depreciation)?

### PROBLEM 9-19 FINANCIAL STATEMENT EFFECTS OF DEPRECIATION METHODS

On July 1, 2002, the consulting firm of Little, Smart, and Quick bought a new computer for $120,000 to help it service its clients more efficiently. The new computer was estimated to have a useful life of five years with an estimated salvage value of $20,000 at the end of five years. It was further estimated that the computer would be in operation about 1,500 hours in each of the five years with some variation of use from year to year. Janet Little, who manages the firm s internal operations, has asked you to help her decide which depreciation method should be selected for the new computer. The methods being considered are straight-line, double-declining-balance, and sum-of-the-years -digits.

*Required:*

1. Prepare a schedule showing depreciation for 2002, 2003, and 2004 for each of the three methods being considered.
2. For each of the three methods, compute the asset book value that would be reported on the balance sheet at December 31, 2004.
3. **Interpretive Question:** Which method would maximize income for the three years (2002 2004), and which would minimize income for the same period?

## PROBLEM 9-20 DEPRECIATION CALCULATIONS

Curtis, Inc., a firm that makes oversized boots, purchased a machine for its factory. The following data relate to the machine:

| | |
|---|---|
| Price | $16,000 |
| Delivery charges | $200 |
| Installation charges | $600 |
| Date purchased | May 1, 2002 |
| Estimated useful life: | |
| In years | 8 years |
| In hours of production | 30,000 hours of operating time |
| Salvage value | $1,800 |

During 2002, the machine was used 4,400 hours. During 2003, the machine was used 3,200 hours.

*Required:*

Determine the depreciation expense and the year-end book values for the machine for the years 2002 and 2003, assuming that:

1. The straight-line method is used.
2. The double-declining-balance method is used.
3. The units-of-production method is used.
4. The sum-of-the-years -digits method is used.
5. **Interpretive Question:** If you were Curtis, which method would you use in order to report the highest profits in 2002 and 2003 combined?

## PROBLEM 9-21 CHANGES IN DEPRECIATION ESTIMATES AND CAPITALIZATION OF EXPENDITURES

Ironic Metal Products, Inc., acquired a machine on January 2, 2001, for $76,600. The useful life of the machine was estimated to be eight years with a salvage value of $4,600. Depreciation is recorded on December 31 of each year using the sum-of-the-years -digits method.

At the beginning of 2003, the company estimated the remaining useful life of the machine to be four years and changed the estimated salvage value from $4,600 to $2,600. On January 2, 2004, major repairs on the machine cost the company $34,000. The repairs added two years to the machine s useful life and increased the salvage value to $3,000.

*Required:*

1. Prepare journal entries to record:
   a. The purchase of the machine.
   b. Annual depreciation expense for the years 2001 and 2002.
   c. Depreciation in 2003 under the revised estimates of useful life and salvage value.
   d. The expenditure for major repairs in 2004.
   e. Depreciation expense for 2004.
2. Compute the book value of the machine at the end of 2004.

## PROBLEM 9-22 UNIFYING CONCEPTS: ACCOUNTING FOR NATURAL RESOURCES

Forest Products, Inc., buys and develops natural resources for profit. Since 2000, it has had the following activities:

1/1/00 Purchased for $800,000 a tract of timber estimated to contain 1,600,000 board feet of lumber.
1/1/01 Purchased for $600,000 a silver mine estimated to contain 30,000 tons of silver ore.
7/1/01 Purchased for $60,000 a uranium mine estimated to contain 5,000 tons of uranium ore.
1/1/02 Purchased for $500,000 an oil well estimated to contain 100,000 barrels of oil.

*Required:*

1. Provide the necessary journal entries to account for the following:
   a. The purchase of these assets.
   b. The depletion expense for 2002 on all four assets, assuming that the following were extracted:
      (1) 200,000 board feet of lumber.
      (2) 5,000 tons of silver.
      (3) 1,000 tons of uranium.
      (4) 10,000 barrels of oil.
2. Assume that on January 1, 2003, after 20,000 tons of silver had been mined, engineers estimates revealed that only 4,000 tons of silver remained. Record the depletion expense for 2003, assuming that 2,000 tons were mined.
3. Compute the book values of all four assets as of December 31, 2003, assuming that the total extracted to date is:
   a. Timber tract, 800,000 board feet.
   b. Silver mine, 22,000 tons [only 2,000 tons are left per (2)].
   c. Uranium mine, 3,000 tons.
   d. Oil well, 80,000 barrels.

## PROBLEM 9-23 UNIFYING CONCEPTS: PROPERTY, PLANT, AND EQUIPMENT

Smithfield Corportation owns and operates three sawmills that make lumber for building homes. The operations consist of cutting logs in the forest, hauling them to the various sawmills, sawing the lumber, and shipping it to building supply warehouses throughout the western part of the United States. To haul the logs, Smithfield has several trucks. Relevant data pertaining to one truck are:

a. Date of purchase, July 1, 2001.
b. Cost:

| | |
|---|---|
| Truck | $60,000 |
| Trailer | 20,000 |
| Paint job (to match company colors) | 1,500 |
| Sales tax | 3,500 |

c. Estimated useful life of the truck, 150,000 miles.
d. Estimated salvage value, zero.
e. 2002 expenditures on truck:
   (1) Spent $5,000 on tires, oil changes, greasing, and other miscellaneous items.
   (2) Spent $22,000 to overhaul the engine and replace the transmission on January 1, 2002. This expenditure increased the life of the truck by 135,000 miles.

*Required:* Record journal entries to account for:

1. The purchase of the truck.
2. The 2001 depreciation expense using units-of-production depreciation and assuming the truck was driven 45,000 miles.
3. The expenditures relating to the truck during 2002.
4. The 2002 depreciation expense using the units-of-production method and assuming the truck was driven 60,000 miles.

## competency enhancement opportunities


- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search


*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***Analyzing 9-1 (Microsoft)***

Using **MICROSOFT** s 1999 annual report contained in Appendix A, answer the following questions:

1. As a percentage of total assets, is Microsoft s investment in property, plant, and equipment increasing or decreasing over time? Which of Microsoft s assets is increasing the fastest as a percentage of total assets? What does that indicate Microsoft is doing?
2. Reference the notes to the financial statements. Which depreciation method does Microsoft use? Estimate the average useful life of Microsoft s depreciable assets (i.e., not including land) by dividing the ending balance in the depreciable asset accounts by the depreciation expense for the year. Does the resulting estimated useful life seem reasonable?
3. Microsoft notes in its statement of cash flows that $583 million of property, plant, and equipment was purchased in 1999. Using that information along with the detailed information from the notes, compute (a) the original cost of the equipment disposed of during 1999 and (b) the accumulated depreciation associated with that equipment. (HINT: For property, plant, and equipment, beginning balance + purchases − disposals = ending balance; a similar calculation is used for accumulated depreciation.)

***Analyzing 9-2 (FedEx)***

**FEDEX** delivers packages around the world. To accomplish this task, FedEx has made huge investments in long-term assets.

1. Identify what you consider to be the major long-term assets of FedEx. Review the information shown at the top of the next page from FedEx s balance sheet (numbers are in thousands) to see how well you did.

| | 2000 | 1999 |
|---|---|---|
| **Property and Equipment, at Cost** (Notes 1, 3, 4 and 12): | | |
| Flight equipment | **$ 4,960,204** | $ 4,556,747 |
| Package handling and ground support equipment | **3,430,316** | 3,193,620 |
| Computer and electronic equipment | **2,088,510** | 2,114,492 |
| Other | **2,479,540** | 2,332,227 |
| | **$12,958,570** | $12,197,086 |
| Less accumulated depreciation and amortization | **6,846,647** | 6,454,579 |
| Net property and equipment | **$ 6,111,923** | $ 5,742,507 |

2. FedEx uses the straight-line depreciation method in depreciating most of its assets. For each major category flight equipment, package handling and ground support equipment (mainly trucks and buildings), and computer and electronic equipment provide an estimate (or a range) as to what you would deem a reasonable useful life for each category.
3. Using the information above, compute the accumulated depreciation associated with the property and equipment sold during 2000 given that depreciation for the year was $997,735,000.
4. FedEx reports a balance of $328 million in its goodwill account at the end of 2000. In the notes to its annual report, the company reported amortization for the period of $11.7 million. Given that the company uses the straight-line method for amortizing its intangible assets, compute the approximate number of years left for amortizing goodwill.

***Analyzing 9-3 (U.S. Steel)***

1. **U.S. STEEL** provides the following information in the notes to its financial statements relating to its use of the straight-line method of depreciation. Can you interpret the information contained in the note?

> *Long-lived assets* Depreciation is generally computed using a modified straight-line method based upon estimated lives of assets and production levels. The modification factors range from a minimum of 85% at a production level below 81% of capability, to a maximum of 105% for a 100% production level. No modification is made at the 95% production level, considered the normal long-range level.

2. U.S. Steel also provides information relating to the balances in its individual property, plant and equipment accounts, as shown at the top of the next page. In very general terms, how old is the company s property, plant, and equipment? Provide support for your answer.

**18. Property, Plant and Equipment**

| (In millions) | December 31 1999 | 1998 |
|---|---|---|
| Land and depletable property | $ 152 | $ 151 |
| Buildings | 484 | 469 |
| Machinery and equipment | 8,007 | 7,711 |
| Leased assets | 105 | 108 |
| Total | $8,748 | $8,439 |
| Less accumulated depreciation, depletion and amortization | 6,232 | 5,939 |
| Net | $2,516 | $2,500 |

## INTERNATIONAL CASE

***Cadbury Schweppes***

**CADBURY SCHWEPPES** is a company based in the United Kingdom. You can probably guess some of the company s products from its name. The company produces Cadbury chocolates and Schweppes tonic water, among other things. But the company also owns the brands Dr. Pepper, A&W, 7 Up, and Crush. The company licenses these brands to distributors around the world.

Although most accounting rules in the United Kingdom are similar to those used in the United States, there are some differences. For example, companies in the United Kingdom are allowed to revalue their property, plant, and equipment upward based on the appraisals of experts. Cadbury Schweppes notes in its 1996 annual report that assets are revalued every five years and that, The Group properties were professionally revalued at 30 September 1995. Information contained in the company s notes indicates that the company s land and buildings had an appraised value of 392 million British pounds and a book value of 314 million British pounds.

1. Can you compose the journal entry made by Cadbury Schweppes accountants to write the assets up in value? What would be the credit portion of the journal entry? (HINT: Although you may not know the exact answer, think about it and make an educated guess. Would the credit be to another asset account? Would it be to a liability account?)
2. Suppose that in the next year, the assets were again revalued and it was determined that a difference existed between market value and book value of only 70 million British pounds. How would this year s journal entry differ from the previous year s?

## ETHICS CASE

***Strategic Accounting Method Choices***

You saw in Chapter 6 that a company s management selects the percentage to be used when computing bad debt expense. You noted in Chapter 7 that management is allowed to choose the method for valuing inventory. In this chapter you found that management gets to choose the method used for depreciating assets, the estimated salvage value, and the estimated useful life.

Suppose that you are involved in negotiations with the local labor union regarding wages for your company s employees. Labor leaders are asking that

their members be given an average annual raise of 12%. The company president has asked you to prepare a set of financial statements that portrays the company s performance as being mediocre at best. The president also makes it clear that she does not want you to prepare fraudulent financial statements. All estimates must be within the bounds of reason.

So you come up with the following:

Change the percentage used for estimating bad debts from 1.5% to 2%.
Elect to use the LIFO method for valuing inventory because the prices associated with inventory have been rising.
Change the average estimated salvage value of long-term assets from 15% to 10% of historical cost.
Change the depreciation method from straight-line to an accelerated method.
Change the average estimated useful life of long-term assets from 10 years to 7 years.

As you know, each of these changes will result in net income being lower. Each of these changes is also still within the bounds of reason required by the company president.

1. Would it be appropriate to make the changes described above in order to obtain favorable terms from the labor union negotiators?
2. If the above changes are made, what sort of disclosure do you think should be required?

## WRITING ASSIGNMENT

***Gains Are Good, Losses Are Bad Right?***

When a long-term asset is sold for more than its book value, we record a gain. When a long-term asset is sold for less than its book value, we record a loss.

Your assignment is to write a two-page memo addressing the following questions:

1. What factors affect a long-term asset s book value?
2. What factors affect a long-term asset s fair value?
3. Should financial statement users expect an asset s book value to equal its fair value?
4. In the case of an asset sold for a loss, if we knew when we purchased the asset what we know at the point of sale, how would depreciation expense have differed if our objective was to ensure that book value equaled fair value when the asset was sold?
5. Is recognizing a loss on the sale of a long-term asset a bad thing? Is a gain good?

## THE DEBATE

***Depreciating an Asset with an Increasing Value***

Paul Didericksen owns and operates a limousine service. He purchases luxury cars and hires drivers to transport people from place to place. Last year, Paul expanded his operations by renting out luxury vehicles on a daily basis for such events as weddings, proms, etc. One car Paul purchased for rental is a 1957 **FORD** Thunderbird. He paid $45,000 for the car and rents it for $250 per day.

Paul s accountant recently provided financial information indicating that the Thunderbird has a book value of $36,000. Paul questions this figure because

he recently received an offer of $53,000 for the Thunderbird. Paul thinks that the car should not be depreciated because its value is increasing. In fact, Paul argues that the asset should be written up in value rather than down.

Divide your group into two teams and prepare to represent the following positions:

The first team supports the position that the Thunderbird should be depreciated because it is used in generating revenues. You are also to provide support against writing the asset up to its fair market value.

The second team argues that the Thunderbird should not be depreciated because its value is increasing rather than decreasing. Also, your group is to argue that the car should be written up to its fair value on the company s books.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet project is a continuation of the spreadsheet projects in earlier chapters. If you completed those spreadsheets, you have a head start on this one.

1. Handyman wishes to prepare a forecasted balance sheet and income statement for 2004. Use the original financial statement numbers for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2] as the basis for the forecast, along with the following additional information:
   a. Sales in 2004 are expected to increase by 40% over 2003 sales of $700.
   b. Cash will increase at the same rate as sales.
   c. The forecasted amount of accounts receivable in 2004 is determined using the forecasted value for the average collection period. For simplicity, do the computations using the end-of-period accounts receivable balance instead of the average balance. The average collection period for 2004 is expected to be 14.08 days.
   d. The forecasted amount of inventory in 2004 is determined using the forecasted value for the number of days sales in inventory (computed using the end-of-period inventory balance). The number of days sales in inventory for 2004 is expected to be 107.6 days.
   e. The forecasted amount of accounts payable in 2004 is determined using the forecasted value for the number of days purchases in accounts payable (computed using the end-of-period accounts payable balance). The number of days purchases in accounts payable for 2004 is expected to be 48.34 days.
   f. The $160 in operating expenses reported in 2003 breaks down as follows: $5 depreciation expense, $155 other operating expenses.
   g. No new long-term debt will be acquired in 2004.
   h. No cash dividends will be paid in 2004.
   i. New short-term loans payable will be acquired in an amount sufficient to make Handyman s current ratio in 2004 exactly equal to 2.0.

   Note: These statements were constructed as part of the spreadsheet assignment in Chapter 7; you can use that spreadsheet as a starting point if you have completed that assignment. *Clearly state any additional assumptions that you make.*

   For this exercise, add the following additional assumptions:
   j. The forecasted amount of property, plant, and equipment (PP&E) in 2004 is determined using the forecasted value for the fixed asset

turnover ratio. For simplicity, compute the fixed asset turnover ratio using the end-of-period *gross* PP&E balance. The fixed asset turnover ratio for 2004 is expected to be 3.518 times.

k. In computing depreciation expense for 2004, use straight-line depreciation and assume a 30-year useful life with no residual value. Gross PP&E acquired during the year is only depreciated for half the year. In other words, depreciation expense for 2004 is the sum of two parts: (1) a full year of depreciation on the beginning balance in PP&E, assuming a 30-year life and no residual value, and (2) a half-year of depreciation on any new PP&E acquired during the year, based on the change in the Gross PP&E balance.

*Clearly state any additional assumptions that you make.*

2. Repeat (1), with the following changes in assumptions:
   a. Fixed asset turnover ratio is expected to be 6.000 times.
   b. Fixed asset turnover ratio is expected to be 2.000 times.
3. Comment on the differences in the forecasted values of the following items in 2004 under each of the following assumptions about the fixed asset turnover ratio: 3.518 times, 6.000 times, and 2.000 times:
   a. Property, plant, and equipment.
   b. Depreciation expense.
   c. Income tax expense.
   d. Paid-in capital.
4. Return the fixed asset turnover ratio to 3.518 times. Now, repeat (1), with the following changes in assumptions:
   a. Estimated useful life is expected to be 15 years.
   b. Estimated useful life is expected to be 60 years.
5. Comment on the differences in the forecasted values of the following items in 2004 under each of the following assumptions about the estimated useful life of property, plant, and equipment: 30 years, 15 years, and 60 years.
   a. Depreciation expense.
   b. Income tax expense.

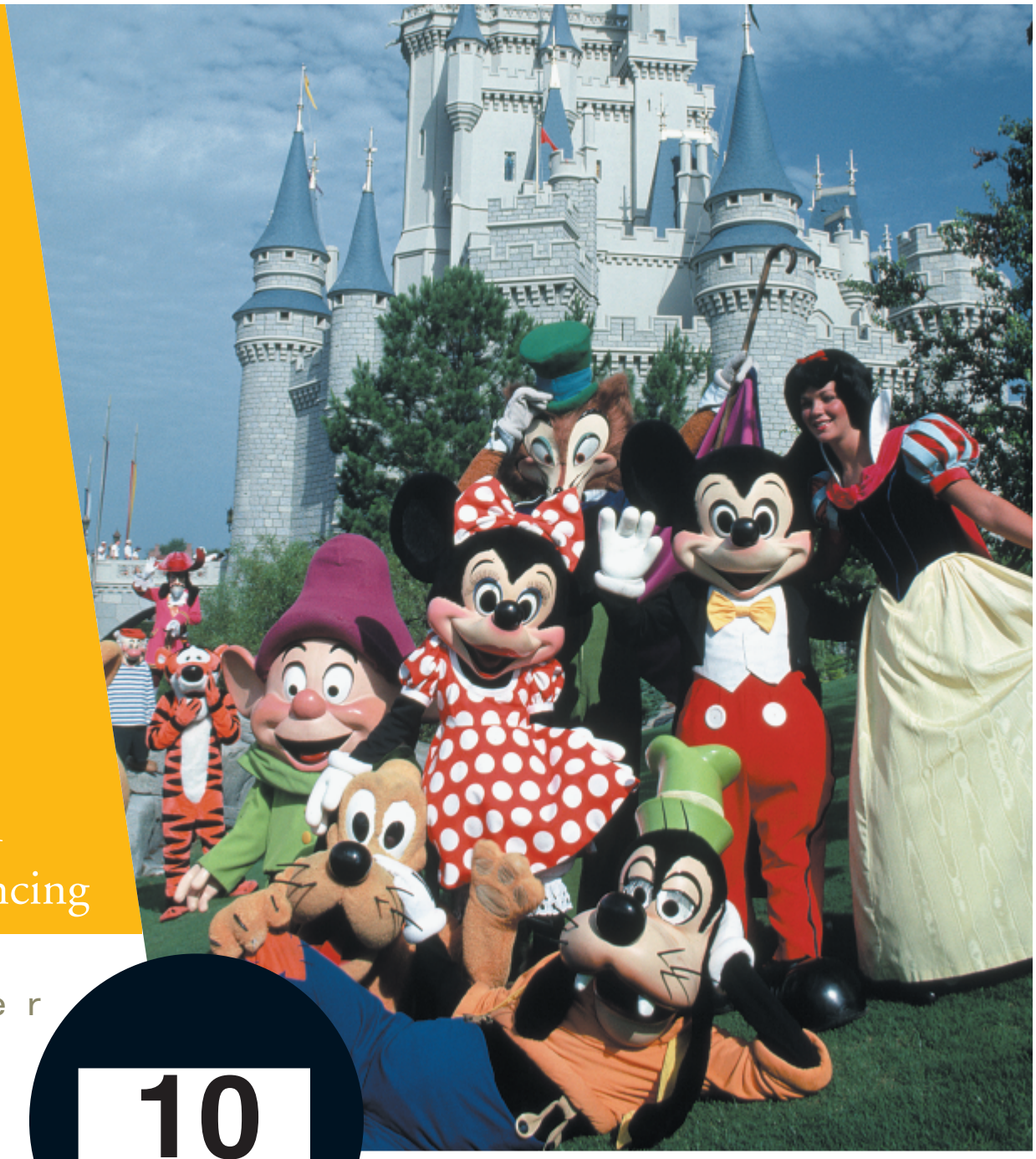
## INTERNET SEARCH

***General Electric***

We began this chapter with a review of the history of **GENERAL ELECTRIC**. Let s go to GE s Web site at **http://www.ge.com** and learn a little more about the company and its financial position. Sometimes Web addresses change, so if this address doesn t work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link to GE.

Once you have gained access to General Electric s Web site, answer the following questions:

1. General Electric was formed in 1892 and constructed the nation s first industrial research laboratory In 1900. Can you identify where this laboratory was located?
2. Locate the company s most recent balance sheet. What percentage of total assets does property, plant, and equipment represent for General Electric? Is that percentage increasing, decreasing, or remaining constant?
3. Access the notes to the financial statements. What depreciation method does General Electric use for most of its manufacturing plant and equipment?
4. Find the note relating specifically to property, plant, and equipment. What types of property, plant, and equipment does General Electric own? Is GE involved strictly in producing light bulbs?



# Long-Term Debt Financing

chapter

10

## learning objectives

After studying this chapter, you should be able to:

1. Use present value concepts to measure long-term liabilities.
2. Account for long-term liabilities, including notes payable and mortgages payable.
3. Account for capital lease obligations and understand the significance of operating leases being excluded from the balance sheet.
4. Account for bonds, including the original issuance, the payment of interest, and the retirement of bonds.
5. Use debt-related financial ratios to determine the degree of a company s financial leverage and its ability to repay loans.

expanded material

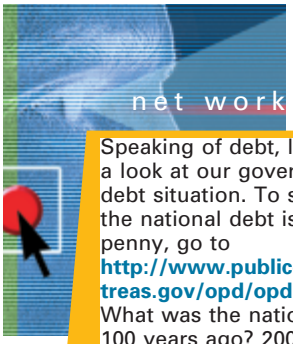
6. Amortize bond discounts and bond premiums using either the straight-line method or the effective-interest method.

setting the stage

In 1923, two brothers, Walt and Roy Disney, founded the **DISNEY BROTHERS STUDIO** as a partnership to produce animated features for film. Five years later, the Disney Brothers Studio released its first animated film with sound effects and dialogue, *Steamboat Willie*, featuring a soon-to-become-famous mouse, Mickey. Pluto was introduced to American audiences in 1930, and Goofy was created just two years later. Walt Disney earned his first Academy Award in 1932 with the release of *Flowers and Trees*, the first full-color animated film. Donald Duck appeared on the scene in 1934, and in 1937 *Snow White and the Seven Dwarfs* was released, accompanied by the first comprehensive merchandising campaign.

But Walt Disney s vision encompassed more than animated films. In 1952, Disney began designing and creating Disneyland, which opened on July 17, 1955. Beginning in the late 1950s, the television shows *Disneyland* (which ran for 29 seasons under various names) and *The Mickey Mouse Club* were also successful Disney ventures. Though Walt Disney passed away in 1966, his influence is still felt around the world. We have Walt Disney World in Florida and Disneylands in Anaheim, California; Paris; and Tokyo. In November 2000, Disney was even scheduled to open an indoor theme park, DisneyQuest, in Chicago.

Disney s company has expanded far beyond what even he could have foreseen. **THE WALT DISNEY COMPANY** is now involved in television and radio stations; international film distribution; home video production; live theatrical entertainment; online computer programs; interactive computer games; telephone company partnerships; cruise lines; Disney Stores; newspaper, magazine, and book publishing; Internet marketing; and the convention business. In the past decade, The Walt Disney Company has grown over 600%. How has the company financed this growth? In part through very successful operations, but these have not been enough. The company has also borrowed to finance its expansion. As of September 30, 1999, The Walt Disney Company had long-term debt totaling over $9 billion. This long-term financing includes lines of credits with U.S. banks as well as loans denominated (or made) in Japanese yen and Italian lira. The effective interest rates on Disney s loans range from 2.7 to 6.4%.[1]




Speaking of debt, let s take a look at our government s debt situation. To see what the national debt is to the penny, go to **http://www.publicdebt.treas.gov/opd/opd.htm**. What was the national debt 100 years ago? 200 years ago?

*How does the market determine the appropriate rate of interest that Disney, or any company, must pay when it borrows money? What factors affect interest rates, and how do interest rate changes influence the value of a liability? What other types of liabilities are affected by interest rates? In this chapter, we will introduce various types of long-term liabilities. We will explain a concept used in measuring the present value of an obligation due in the future. This concept the time value of money is useful for computing the value of bonds and notes, as in the Disney example, as well as for computing mortgage payments and pension obligations. In the main part of this chapter, we discuss the measurement of long-term liabilities and introduce numerous types of long-term liabilities notes, mortgages, leases, and bonds. The basic accounting procedures associated with several of these liabilities are also discussed. In the expanded material, the complexities associated with the amortization of a bond issued at a premium or discount are discussed. Exhibit 10-1 highlights the financial statement accounts discussed in this chapter.*

## MEASURING LONG-TERM LIABILITIES

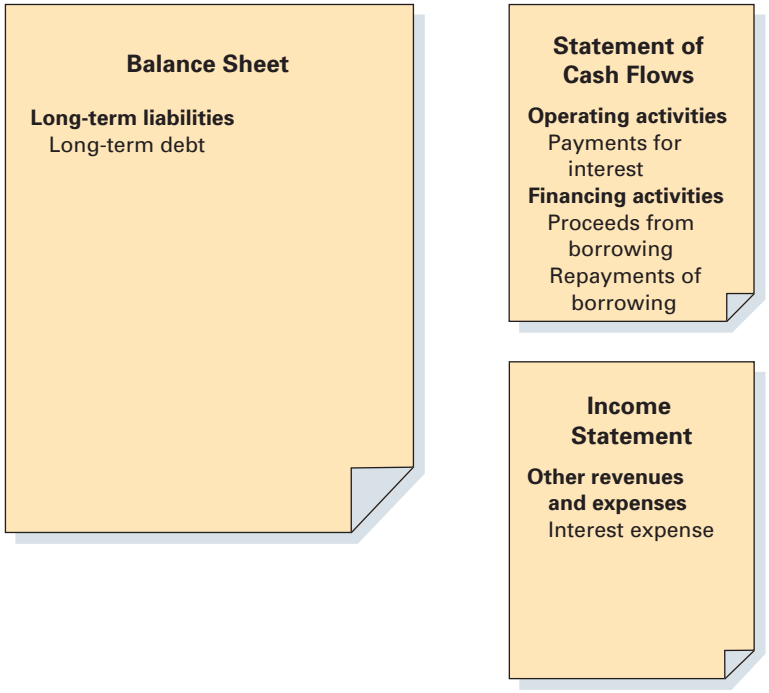
**1**

Use present value concepts to measure long-term liabilities.

Conceptually, the value of a liability is the cash that would be required to pay the liability in full today. Because money has a time value, most people are willing to accept less money today than they would if a liability were paid in the future. Therefore, with the exception of Accounts Payable, liabilities to be paid in the future usually involve interest.

1 The information for this scenario was obtained from Disney s Web site at **http://www.disney.com**.

**exhibit 10-1** Financial Statement Items Discussed in This Chapter




**long-term liabilities** Debts or other obligations that will not be paid within one year.

Accounting for **long-term liabilities** is complex because usually payments of interest, or in some cases principal and interest, are made periodically over the period in which the liability is outstanding. Further, in some cases the amount of the liability in a noncash transaction may not be readily apparent. The time value of money concept is used in measuring and recording these liabilities.

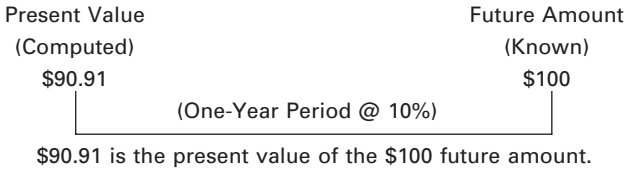
## Present Value and Future Value Concepts

The concepts of present value and future value are used to measure the effect of time on the value of money. To illustrate, if you are to receive $100 one year from today, is it worth $100 today? Obviously not, because if you had the $100 today you could either use it now or invest it and earn interest. If the $100 isn t to be received for one year, those options are not available.

**present value of $1** The value today of $1 to be received or paid at some future date, given a specified interest rate.

The **present value of $1** is the value today of $1 to be received or paid in the future, given a specified interest rate. To determine the value today of money to be received or paid in the future, we must discount the future amount (reduce the amount to its present value) by an appropriate interest rate. For example, if money can earn 10% per year, $100 to be received one year from now is approximately equal to $90.91 received today.

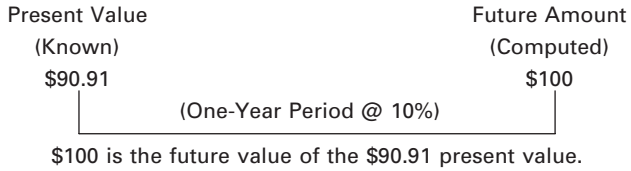
Putting it another way, if $90.91 is invested today in an account that earns 10% interest for one year, the interest earned will be $9.09 ($90.91 × 10% × 1 year = $9.09). The sum of the $90.91 principal and the $9.09 interest will equal $100 at the end of one year. Thus, the present value of $100 to be received (or paid) in one year with 10% interest is $90.91. This present value relationship can be diagrammed as follows:




$90.91 is the present value of the $100 future amount.

The relationships in this diagram can be described in two ways. We have just seen that the $90.91 is the present value of $100 to be received one year from now when interest is 10%. In this example, the $100 to be received one year from now is known, and the present value of $90.91 must be computed. We are computing a present value amount from a known future value amount.

Another way to look at the relationship is on a future value basis. Future values apply when the amount today ($90.91) is known, and the future amount must be calculated. Future values are exactly the opposite of present values. Thinking in terms of future values, $100 is the future amount we can expect to receive in one year, given a present known amount of $90.91 when the interest rate is 10%. We can diagram this relationship as follows:




Present and future values can be calculated using formulas. If more than one period is involved, however, the formula is exponential, and the calculations become rather complicated. Therefore, it is more convenient to use either a present value table or a calculator that gives the present value of $1 for various numbers of periods and interest rates (see Table I, page 483) or a future value table that gives the future value of $1 for various numbers of periods and interest rates (see Table III, page 485). We will illustrate the use of both a present value table and a future value table as well as the keystrokes needed when using a standard business calculator.

**COMPUTING THE PRESENT VALUE OF A SINGLE AMOUNT** To use a present value table, you simply locate the appropriate number of periods in the leftmost column and the interest rate in the row at the top of the table. The intersection of the row and column is the factor representing the present value of $1 for the number of periods and the relevant interest rate. To find the present value of an amount other than $1, multiply the factor in the table by that amount.

To illustrate the use of a present value table (Table I) to find the present value of a known future amount, assume that $10,000 is to be paid four years from today when the interest rate is 10%. What is the present value of the $10,000 payment?

| | |
|---|---|
| Amount of payment | $10,000 |
| Present value factor of $1 to be paid in 4 periods at 10% interest (from Table I) | × 0.6830 |
| Present value of payment | $ 6,830 |

This present value amount, $6,830, is the amount that could be paid today to satisfy the obligation that is due four years from now. As indicated, this procedure is sometimes referred to as discounting. Thus, we say that $10,000 discounted for four years at 10% is $6,830. Stated another way, if $6,830 is invested today in an account that pays 10% interest, in four years the balance in that account will be $10,000.

Another way to compute this same amount is to use a business calculator. The keystrokes described below are for a Hewlett-Packard 10B business calculator; similar keystrokes are used with other business calculators. To compute the present value of $10,000 to be received four years from today, with a prevailing interest rate of 10%, make the following keystrokes:

**Hewlett-Packard Keystrokes:**

a. Always **CLEAR ALL** before doing anything else. With a Hewlett-Packard 10B, one does this by pressing the yellow key, then pressing Input. This has the effect of clearing out any information left over from a prior computation.

b. Always set **P/YR** (payments per year) to the correct number 1 in this case. With a Hewlett-Packard 10B, one does this by pressing 1, then pressing the yellow key, then pressing PMT. This has the effect of telling the calculator that each year is being viewed as a separate period. As described later in this chapter, interest can be compounded over different periods, such as monthly, quarterly, daily, or even continuously. Setting **P/YR** equal to 1 means that the interest rate is compounded annually. Sometimes, the default for this amount is 12 because the calculator is set to compute monthly payments. Until you are comfortable using your calculator, your best strategy is to set this amount to 1 to avoid having the calculator doing too many mysterious things automatically.

1. 10,000 Press **FV**.
2. 4 Press **N**.
3. 10 Press **I/YR**.
4. Press **PV** for the answer of $6,830.13.

**COMPUTING THE FUTURE VALUE OF A SINGLE AMOUNT** To find the future value of an amount that is known today, use a future value table. When using a future value table, simply locate the appropriate number of periods in the leftmost column and the interest rate in the row at the top of the table. The intersection of the row and column is the factor representing the future value of $1 for the number of periods and the relevant interest rate. To find the future value of an amount other than $1, multiply the factor in the table by that amount.

To illustrate the use of a future value table (Table III), we will use the same information as before, except that we will now assume that the present value of $6,830 is known, not the future amount of $10,000. Assume that we have a savings account with a current balance of $6,830 that earns interest of 10%. What will be the balance in that account in four years?

| | |
|---|---|
| Present value in savings account | $ 6,830* |
| Future value factor of $1 in 4 periods at 10% interest (from Table III) | × 1.4641* |
| Future value | $10,000* |

*Rounded; other calculations in chapter will also be rounded.

**Hewlett-Packard Keystrokes:**

a. **CLEAR ALL**.
b. Set **P/YR** to 1.

1. 6,830 Press **PV**.
2. 4 Press **N**.
3. 10 Press **I/YR**.
4. Press **FV** for the answer of $9,999.80.

When computing future values, we often use the term *compounding* to mean the frequency with which interest is added to the principal. Thus, we say that interest of 10% has been compounded once a year (annually) to arrive at a future value at the end of four years of $10,000. If the interest is added more or less frequently than once a year, the future amount will be different.

**compounding period** The period of time for which interest is computed.

The preceding example assumed an annual **compounding period** for interest. If the 10% interest had been compounded semiannually (twice a year) for four years, the calculation would have used a 5% (one-half of the 10%) rate for eight periods (4 years × 2 periods per year) in-

stead of 10% for four periods. To illustrate, what is the present value of $10,000 to be paid in four years if interest of 10% is compounded semiannually?

| | |
|---|---|
| Amount of payment | $10,000 |
| Present value factor of $1 to be paid in 8 periods at 5% interest (from Table I) | × 0.6768 |
| Present value of payment | $ 6,768 |

Thus, the present value of $10,000 to be paid in four years is $6,768 if interest is compounded semiannually. Likewise, if semiannual compounding is used to determine the future value of $6,768 in four years at 10% compounded semiannually, the result is as follows:

| | |
|---|---|
| Present value in savings account | $ 6,768 |
| Future value factor of $1 in 8 periods at 5% interest (from Table III) | × 1.4775 |
| Future value | $10,000 |

Note that the present value ($6,768) is lower with semiannual compounding than with annual compounding ($6,830). The more frequently interest is compounded, the greater the total amount of interest deducted (in computing present values) or added (in computing future values).

For practice using semiannual compounding with a business calculator, try the following set of keystrokes:

**Hewlett-Packard Keystrokes:**

a. **CLEAR ALL**.
b. Set **P/YR** to 1. There is a simple way to tell the calculator to automatically compute the impact of semiannual compounding. Look in your calculator instruction book if you are interested in knowing how to do this. Alternatively, you can do some of the calculations yourself (divide the interest rate by two and double the number of periods) and use the keystrokes below.

1. 6,768 Press **PV**.
2. 8 Press **N**.
3. 5 Press **I/YR**.
4. Press **FV** for the answer of $9,999.72.

Without referencing the present value tables, answer these questions: As interest rates increase, would you expect the present value factors to increase or decrease? Why?

Because interest may also be compounded quarterly, monthly, or for some other period, you should learn the relationship of interest to the compounding period. Semiannual interest means that you double the interest periods and halve the annual interest rate; with quarterly interest, you quadruple the periods and take one-fourth of the annual interest rate. The formula for interest rate is:

$$\frac{\text{Yearly interest rate}}{\text{Compounding periods per year}} = \text{Interest rate per compounding period}$$

The number of interest periods is simply the number of periods per year times the number of years. That formula is:

$$\text{Compounding periods per year} \times \text{Number of years} = \text{Number of interest periods}$$

## Computing the Present Value of an Annuity

In discussing present values and future values, we have assumed only a single present value or future value with one of the amounts known and the other to be computed. With liabilities, we generally know the future amount that must be paid and would like to compute the present value of that future payment. Because this chapter focuses on liabilities, we will concentrate on present value calculations.

**annuity** A series of equal amounts to be received or paid at the end of equal time intervals.

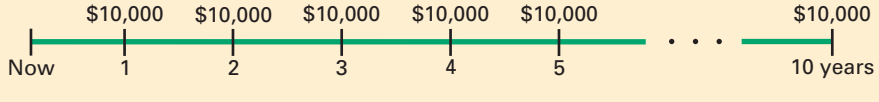
**present value of an annuity** The value today of a series of equally spaced, equal-amount payments to be made or received in the future given a specified interest rate.

Many long-term liabilities involve a series of payments rather than one lump-sum payment. For example, a company might purchase equipment under an installment agreement requiring payments of $5,000 each year for five years. Determining the value today (present value) of a series of equally spaced, equal-amount payments (called an **annuity**) is more complicated than determining the present value of a single future payment. If you were to try to calculate the **present value of an annuity** by hand, you would have to discount the first payment for one period, the second payment for two periods, and so on, and then add all the present values together. Because such calculations are time-consuming, a table is generally used (see Table II, page 484). The factors in the table are the sums of the individual present values of all future payments. Based on the present value of an annuity of $1, the table provides factors for various interest rates and number of payments.

**caution**

Use care when referencing the present value and future value tables. You can do all your computations correctly, but if you pull the factor from the wrong table, your answer will be wrong.

To illustrate the use of a present value of an annuity table (Table II), we will assume that $10,000 is to be paid at the end of each of the next 10 years. This series of payments is illustrated below:




If the interest rate is 12% compounded annually, Table II shows a present value factor of 5.6502. This factor means that the present value of $1 paid each year for 10 years discounted at 12% is approximately $5.65. Applying this factor to payments of $10,000 results in the following:

| | |
|---|---|
| Amount of the annual payment | $10,000 |
| Present value factor of an annuity of $1 discounted for 10 payments at 12% | × 5.6502 |
| Present value | $56,502 |

**fyi**

The underlying mathematical formula for computing the present value of an annuity is actually an elegant simplification of a long series of present value formulas, one for each payment. Unfortunately, it is beyond the scope of this text to illustrate how this annuity formula can be derived as the difference between two infinite sums.

This amount, $56,502, is the amount (present value) that could be paid today to satisfy the obligation if the interest rate is 12%.

The present value of an annuity can also be computed with a business calculator as follows:

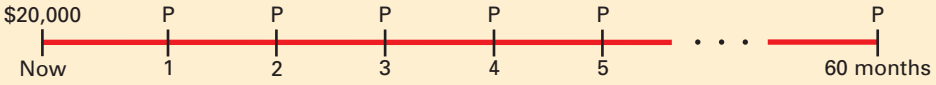
**Hewlett-Packard Keystrokes:**

a. **CLEAR ALL**.
b. Set **P/YR** to 1.

1. 10,000 Press **PMT**.
2. 10 Press **N**.
3. 12 Press **I/YR**.
4. Press **PV** for the answer of $56,502.23.

**COMPUTING PERIODIC PAYMENTS** With some modifications, the same calculations used to compute the present value of an annuity can be used to compute the proper amount of a periodic loan payment. For example, consider the task of computing the appropriate monthly pay-

ment on an automobile loan of $20,000 if the interest rate is 12% compounded monthly (i.e., 1% per month) and the loan period is 60 months. This problem can be viewed as follows:




In this case, we know the present value of the annuity it is $20,000, or the amount we would have to pay today to pay off the entire loan. What we want to know is what series of 60 payments (P in the diagram) has a present value exactly equal to the $20,000 that we owe. The calculation of the payment amount can be set up as follows:

| | |
|---|---|
| Amount of the annual payment | Payment |
| Present value factor of an annuity of $1 discounted for 60 payments at 1% | × 44.9550 |
| Present value | $20,000 |

In equation format, this can be written as follows:

$$\$20{,}000 = \text{Payment} \times 44.9550$$

$$\text{Payment} = \$20{,}000/44.9550$$

$$\text{Payment} = \$444.89$$

In other words, paying $444.89 per month for 60 months is the same as paying $20,000 right now, if the interest rate on borrowed money is 12% compounded monthly (1% per month).

This payment amount can also be computed with a business calculator as follows:

**Hewlett-Packard Keystrokes:**

a. **CLEAR ALL**.
b. Set **P/YR** to 1.

1. 20,000 Press **PV**.
2. 60 Press **N**.
3. 1 Press **I/YR**.
4. Press **PMT** for the answer of $444.88895.

## to summarize

Long-term liabilities are debts or other obligations that will not be paid or satisfied within one year. Present value concepts, which equate the value of money received or paid in different periods, are used to measure long-term liabilities. Although present values can be computed using formulas, it is usually more convenient to use a table, such as Table I or II on pages 483 484, or a business calculator. If a future lump-sum payment is involved, Table I can be used to determine the present value. Table II is used to compute the present value of an annuity, which is a series of equally spaced, equal-amount payments. To determine the value of an amount at some point in the future, future value tables can be used. Tables III and IV allow one to compute the future value of a lump sum or an annuity, respectively. In calculating present and future values, you must consider the compounding period and the interest rate. For other

than annual payments, the number of periods used is the number of periods per year times the number of years; the interest rate used is the annual rate divided by the number of periods per year. The same type of computations used to compute the present value of an annuity can also be used to compute the proper amount of a periodic payment, such as the monthly payment on a car loan.

---

**2**

Account for long-term liabilities, including notes payable and mortgages payable.

## ACCOUNTING FOR LONG-TERM LIABILITIES

Now that we have explained how present value concepts are applied in measuring long-term liabilities, we are ready to discuss the accounting for those liabilities. The time line in Exhibit 10-2 illustrates the business events associated with long-term liabilities.

A company s first decision is to determine the type of long-term financing to use. In this chapter we will discuss four different types of financing: notes payable, mortgages payable, leasing, and bonds. There are advantages and disadvantages to each type of financing. For example, bonds (which are sold in $1,000 increments) allow a company to borrow a little bit of money from a lot of different people, whereas notes involve borrowing a lot of money from one lender (or perhaps a consortium of lenders). The benefit of a mortgage is typically a lower interest rate because the property being purchased is used as collateral on the loan, thereby providing the lender with less risk. Leases have the advantage of typically requiring a lower down payment as there are no risks associated with product obsolescence. (At the end of many leases, the asset being leased is returned to the owner.) Once the pros and cons of the various types of financing are analyzed, and the company selects an option, the accounting differs, depending upon the type of financing chosen. In this section, we will discuss the recording of long-term debt, including notes payable and mortgages payable.

### Interest-Bearing Notes

To illustrate the accounting for a long-term interest-bearing note payable, assume that on January 1, 2003, Giraffe Company borrowed $10,000 from City Bank for three years at 10% interest. Assume also that interest is payable annually on December 31. The entries to account for the note are:

---

**exhibit 10-2** Time Line of Business Issues Involved with Long-Term Liabilities

| | | | |
|---|---|---|---|
| 2003 | | | |
| Jan. 1 | Cash | 10,000 | |
| | Note Payable | | 10,000 |
| | *Borrowed $10,000 from City Bank for three years.* | | |
| Dec. 31 | Interest Expense | 1,000 | |
| | Cash | | 1,000 |
| | *Made first annual interest payment on City Bank note ($10,000 × 0.10).* | | |
| 2004 | | | |
| Dec. 31 | Interest Expense | 1,000 | |
| | Cash | | 1,000 |
| | *Made second annual interest payment on City Bank note ($10,000 × 0.10).* | | |
| 2005 | | | |
| Dec. 31 | Interest Expense | 1,000 | |
| | Note Payable | 10,000 | |
| | Cash | | 11,000 |
| | *Made final interest payment ($10,000 × 0.10) and repaid principal on City Bank note.* | | |

A long-term note such as this three-year note should be recorded in the books at the present value of the future cash payments to be made in connection with the note. If the market interest rate is 10%, then the present value of the cash payments on the note is computed as follows:

| | | |
|---|---|---|
| Present value of interest payments: | | |
| Amount of each interest payment | $ 1,000 | |
| Table II factor for 3 payments at 10% | × 2.4869 | |
| Present value of annuity | | $ 2,487 |
| Present value of principal payment: | | |
| Amount of principal payment | $ 10,000 | |
| Table I factor for 3 periods at 10% | × 0.7513 | |
| Present value of single payment | | 7,513 |
| Present value of interest and principal | | $10,000 |

**f y i**

As illustrated later in the chapter in the discussion of accounting for bonds, if the market rate of interest differs from the annual interest rate to be paid on a loan, then the present value of the cash payments will not be the same as the face amount of the loan. For example, if no interest payments were to be made on the note in the example given here, then the present value of the cash flows associated with the note would be just $7,513, which is the present value of the $10,000 payment to be made at the end of three years.

The total present value is the sum of the present values of the interest payments (an annuity) and the single principal payment due in three years. In this case, the present value of the cash payments on the note is exactly equal to the note s face amount of $10,000. This is because the annual interest payments of 10% are equal to the market rate of interest, or the rate of interest that lenders would insist on earning for lending money in exchange for the note.

In the notes to its 1999 financial statements, **THE WALT DISNEY COMPANY** reported the existence of a variety of notes payable, including notes for which the amounts to be repaid were stated in Japanese yen and Italian lira. In addition, Disney reported the existence of $1.247 billion in participating notes; the rate of interest to be paid on these notes depends on the financial performance of the films whose production was financed through the issuance of the notes.

**mortgage payable** A written promise to pay a stated amount of money at one or more specified future dates; a mortgage is secured by the pledging of certain assets, usually real estate, as collateral.

## Mortgages Payable

A **mortgage payable** is similar to a note payable in that it is a written promise to pay a stated sum of money at one or more specified future dates. It differs from a note in the way it is applied. Whereas money borrowed with a note can often be used for any business purpose, mortgage money is usually related to a specific asset, typically real estate. Assets purchased with a

## business environment essay

**How Interest Rates Affect Mortgage Payments** The interest rate on a mortgage is as important as the amount of the loan in determining whether a person can afford a mortgage. This is because the amount of interest paid over an extended period of time will be at least equal to, or even two or three times, the amount of the loan. The table on the next page shows the monthly payments on a $100,000, 25-year mortgage at interest rates from 7 to 14%, as well as the qualifying annual income.

The qualifying annual income is the minimum amount a person must earn to afford the payments at each interest rate. The **FEDERAL HOME LOAN MORTGAGE CORPORATION** and most lending institutions recommend that the monthly payment not exceed 28% of a person s monthly gross income. If, for example, you earn $30,000 a year, you should pay no more than $700 a month on a mortgage, which would be a $100,000 mortgage at 7% or a $58,000 mortgage at 14%. For this reason, most people shop around for the lowest mortgage rates and even then, many will not qualify for a loan.

To calculate the monthly payments on a smaller or larger mortgage, divide the amount by $100,000, then multiply that percentage by the figure in the table. For example, the monthly payment on a $60,000 mortgage at 9% is $503.40 [($60,000/$100,000) × $839].

mortgage are usually pledged as security or collateral on the loan. Individuals commonly obtain home mortgages, and companies frequently use plant mortgages. In either case, a mortgage generally requires periodic (usually monthly) payments of principal plus interest.

To illustrate the accounting for a mortgage, we will assume that McGiven Automobile Company borrows $100,000 on January 1 to purchase a new showroom and signs a mortgage agreement pledging the showroom as collateral on the loan. If the mortgage is at 8% for 30 years, and the monthly payment is $733.76, payable on January 31 with subsequent payments due at the end of each month thereafter, the entries to record the acquisition of the mortgage and the first monthly payment are:

| | | | |
|---|---|---|---|
| Jan. 1 | Cash | 100,000 | |
| | Mortgage Payable | | 100,000 |
| | *Borrowed $100,000 to purchase the automobile showroom.* | | |
| Jan. 31 | Mortgage Payable | 67.09 | |
| | Interest Expense | 666.67 | |
| | Cash | | 733.76 |
| | *Made first month s mortgage payment.* | | |

As this entry shows, only $67.09 of the $733.76 payment is applied to reduce the mortgage; the remainder is interest ($100,000 × 0.08 × 1/12). In each successive month, the amount applied to reduce the mortgage will increase slightly until, toward the end of the 30-year mortgage, almost all of the payment will be for principal. A **mortgage amortization schedule** identifies how much of each mortgage payment is interest and how much is principal reduction, as shown in Exhibit 10-3. Note that during the first 20 years of McGiven s $100,000, 8%, 30-year mortgage, more of each mortgage payment is for interest than for principal.

**mortgage amortization schedule** A schedule that shows the breakdown between interest and principal for each payment over the life of a mortgage.

At the end of each year, a mortgage is reported on the balance sheet in two places: (1) the principal to be paid during the next year is shown as a current liability, and (2) the balance of the mortgage payable is shown as a long-term liability. Further, any accrued interest on the mort-

| $100,000, 25-Year Mortgage | | | |
|---|---|---|---|
| Interest Rate | Monthly Payment | Total Amount Paid | Qualifying Annual Income |
| 7% | $ 707 | $212,100 | $30,300 |
| 8% | 772 | 231,600 | 33,086 |
| 9% | 839 | 251,700 | 35,957 |
| 10% | 909 | 272,700 | 38,957 |
| 11% | 980 | 294,000 | 42,000 |
| 12% | 1,053 | 315,900 | 45,129 |
| 13% | 1,128 | 338,400 | 48,343 |
| 14% | 1,204 | 361,200 | 51,600 |

**exhibit 10-3** Mortgage Amortization Schedule ($100,000, 30-Year Mortgage at 8%)

| | | End-of-Year Totals | | |
|---|---|---|---|---|
| Year | Monthly Payment | Principal Paid during Year | Interest Paid during Year | Outstanding Mortgage Balance |
| 1 | $733.76 | $ 835 | $7,970 | $99,165 |
| 2 | 733.76 | 905 | 7,900 | 98,260 |
| 3 | 733.76 | 980 | 7,825 | 97,280 |
| 4 | 733.76 | 1,061 | 7,744 | 96,219 |
| 5 | 733.76 | 1,149 | 7,656 | 95,070 |
| 10 | 733.76 | 1,712 | 7,093 | 87,725 |
| 15 | 733.76 | 2,551 | 6,254 | 76,783 |
| 20 | 733.76 | 3,800 | 5,005 | 60,080 |
| 25 | 733.76 | 5,661 | 3,144 | 36,793 |
| 30 | 733.76 | 8,434 | 371 | 0 |

Total payments over life of mortgage: $264,154*
*$733.76 × 360 payments = $264,154.

gage is reported as a current liability, and the interest expense for the year is included with other expenses on the income statement.

## to summarize

Long-term interest-bearing notes are obligations that will be repaid over several years. Interest on the note is computed by multiplying the outstanding

balance of the note times the rate of interest. Mortgages payable are long-term liabilities that arise when companies borrow money to buy land, construct buildings, or purchase additional operating assets. Mortgages are tied to specific assets. They are amortized over a period of time and involve periodic, usually monthly, payments that include both principal and interest.

## ACCOUNTING FOR LEASE OBLIGATIONS

**3** Account for capital lease obligations and understand the significance of operating leases being excluded from the balance sheet.

As discussed in Chapter 9, a company may choose to lease rather than purchase an asset. If a lease is a simple, short-term rental agreement, called an operating lease, lease payments are recorded as Rent Expense by the lessee and as Rent Revenue by the lessor. However, if the terms of a lease agreement meet specific criteria (see Chapter 9, page 401), the transaction is classified as a capital lease and is accounted for as if the asset had been purchased with long-term debt. The lessee records the leased property as an asset and recognizes a liability to the lessor.

In Chapter 9, we focused on the recording of assets acquired under capital leases, using assumed amounts for the present value. Here we will explain how the present value of a capital lease is determined. To illustrate the measurement and recording of a capital lease, we will assume that Malone Corporation leases a mainframe computer from Macro Data, Inc., on December 31, 2002. The lease requires annual payments of $10,000 for 10 years, with the first payment due on December 31, 2003.[2] The rate of interest applicable to the lease is 14% compounded annually.

Assuming the lease meets the criteria for a capital lease, Malone Corporation will record the computer and the related liability at the present value of the future lease payments. From Table II, on page 484, the factor for the present value of an annuity for 10 payments at 14% is 5.2161.

A construction company may choose to lease large equipment rather than purchase such an asset.

2 Readers should be aware that the illustration of a capital lease presented here assumes that lease payments are made at the end of each year, with the present values based on an ordinary annuity. Usually, lease payments are made at the beginning of each lease period, which requires present value calculations using the concept of an annuity in advance or annuity due. These calculations are explained in intermediate accounting texts.

**fyi**

Many companies structure their lease agreements so as not to meet the lease capitalization criteria. In these cases, the companies must still disclose their expected future lease payments in the notes to the financial statements.

This factor is multiplied by the annual lease payment to determine the present value. The entry to record the lease on Malone s books is:

| | | | |
|---|---|---|---|
| 2002 | | | |
| Dec. 31 | Leased Computer | 52,161 | |
| | Lease Liability | | 52,161 |
| | *Leased a computer from Macro Data, Inc., for $10,000 a year for 10 years discounted at 14% ($10,000 × 5.2161 = $52,161).* | | |

If Malone Corporation uses a calendar year for financial reporting, the December 31, 2003 balance sheet will report the leased asset in the property, plant, and equipment section and the lease liability in the liabilities section.

A schedule of the computer lease payments is presented in Exhibit 10-4. Each year the lease liability account balance is multiplied by 14% to determine the amount of interest included in each of the annual $10,000 lease payments.

**exhibit 10-4** Schedule of Computer Lease Payments

| Year | Annual Payment | Interest Expense (0.14 × Lease Liability) | Principal | Lease Liability |
|---|---|---|---|---|
| | | | | $52,161 |
| 1 | $10,000 | (0.14 × $52,161) = $7,303 | $2,697 | 49,464 |
| 2 | 10,000 | (0.14 × 49,464) = 6,925 | 3,075 | 46,389 |
| 3 | 10,000 | (0.14 × 46,389) = 6,494 | 3,506 | 42,883 |
| 4 | 10,000 | (0.14 × 42,883) = 6,004 | 3,996 | 38,887 |
| 5 | 10,000 | (0.14 × 38,887) = 5,444 | 4,556 | 34,331 |
| 6 | 10,000 | (0.14 × 34,331) = 4,806 | 5,194 | 29,137 |
| 7 | 10,000 | (0.14 × 29,137) = 4,079 | 5,921 | 23,216 |
| 8 | 10,000 | (0.14 × 23,216) = 3,250 | 6,750 | 16,466 |
| 9 | 10,000 | (0.14 × 16,466) = 2,305 | 7,695 | 8,771 |
| 10 | 10,000 | (0.14 × 8,771) = 1,229* | 8,771 | 0 |

*Rounded.

Note that this is the same procedure used with a mortgage when determining the amount of each payment that is applied to reduce the principal and the amount that is considered interest expense.

The remainder of the payment is a reduction in the liability. For example, the first lease payment is recorded as follows:

| | | | |
|---|---|---|---|
| 2003 | | | |
| Dec. 31 | Interest Expense | 7,303 | |
| | Lease Liability | 2,697 | |
| | Cash | | 10,000 |
| | *Paid annual lease payment for computer ($52,161 × 0.14 = $7,303; $10,000 − $7,303 = $2,697).* | | |

Similar entries would be made in each of the remaining nine years of the lease, except that the principal payment (reduction in Lease Liability) would increase while the interest expense would decrease. Interest expense decreases over the lease term because a constant rate (14%) is applied to a decreasing principal balance.

Although the asset and liability accounts have the same balance at the beginning of the lease term, they seldom remain the same during the lease period. The asset and the liability are accounted for separately, with the asset being depreciated using one of the methods discussed in Chapter 9.

## Operating Leases

When a lease is accounted for as a capital lease, the lease obligation (and an associated leased asset) will appear on the balance sheet of the company using the leased asset. If, on the other hand, a company is able to classify a lease as an operating lease according to the criteria outlined in Chapter 9, *nothing will appear on the balance sheet.* Neither the leased asset nor the lease liability will be recognized. For this reason, an operating lease is often referred to as a form of off-balance-sheet financing the economic obligation associated with the financing arrangement entered into to secure the use of an asset is not reported on the balance sheet.

Because operating leases are not reported on the balance sheet, accounting rules require companies to disclose operating lease details in the financial statement notes so that financial statement users will be aware of these off-balance-sheet obligations. The information from the operating lease note from **DISNEY** s 1999 financial statements is reproduced below:

The company has various real estate operating leases, including retail outlets for the distribution of consumer products and office space for general and administrative purposes. Future minimum lease payments under these non-cancelable operating leases totaled $2.2 billion at September 30, 1999, payable as follows [in millions]:

| | |
|---|---|
| 2000 | $ 297 |
| 2001 | 262 |
| 2002 | 239 |
| 2003 | 216 |
| 2004 | 185 |
| Thereafter | 1,019 |

Recall that the obligation to make this $2.2 billion in operating lease payments is *not* reported as a liability on Disney s balance sheet.

## to summarize

A lease is a contract whereby the lessee makes periodic payments to the lessor for the use of an asset. A simple short-term rental agreement, or operating lease, involves only the recording of rent expense by the lessee and rent revenue by the lessor. A capital lease is accounted for as a debt-financed purchase of the leased asset. Both the asset and the liability are initially recorded by the lessee at the present value of the future lease payments discounted at the applicable interest rate. Subsequently, the asset is depreciated and the lease liability is written off as periodic payments are made. Part of each lease payment is interest expense, computed at a constant interest rate, and the remainder is a reduction of the principal amount of the liability. Operating leases are a form of off-balance-sheet financing because the obligation to make future operating lease payments is not recognized as a liability on the balance sheet. Companies are required to disclose the amount of their future operating lease payments in the notes to the financial statements.

**4**

Account for bonds, including the original issuance, the payment of interest, and the retirement of bonds.

# THE NATURE OF BONDS

A **bond** is a contract between the borrowing company (issuer) and the lender (investor) in which the borrower promises to pay a specified amount of interest at the end of each period the bond is outstanding and to repay the principal at the maturity date of the bond contract. Bonds generally have maturity dates exceeding 10 years and, as a result, are another example of a long-term liability.

**bond** A contract between a borrower and a lender in which the borrower promises to pay a specified rate of interest for each period the bond is outstanding and repay the principal at the maturity date.

**debentures (unsecured bonds)** Bonds for which no collateral has been pledged.

**secured bonds** Bonds for which assets have been pledged in order to guarantee repayment.

**registered bonds** Bonds for which the names and addresses of the bondholders are kept on file by the issuing company.

**coupon bonds** Unregistered bonds for which owners receive periodic interest payments by clipping a coupon from the bond and sending it to the issuer as evidence of ownership.

**term bonds** Bonds that mature in one single sum at a specified future date.

**serial bonds** Bonds that mature in a series of installments at specified future dates.

**callable bonds** Bonds for which the issuer reserves the right to pay the obligation before its maturity date.

**convertible bonds** Bonds that can be traded for, or converted to, other securities after a specified period of time.

**zero-coupon bonds** Bonds issued with no promise of interest payments; only a single payment will be made.

## Types of Bonds

Bonds can be categorized on the basis of various characteristics. The following classification system considers three characteristics:

1. The extent to which bondholders are protected.
   a. **Debentures** (or **unsecured bonds**). Bonds that have no underlying assets pledged as security, or collateral, to guarantee their repayment.
   b. **Secured bonds**. Bonds that have a pledge of company assets, such as land or buildings, as a protection for lenders. If the company fails to meet its bond obligations, the pledged assets can be sold and used to pay the bondholders. Bonds that are secured with the issuer s assets are often referred to as mortgage bonds.
2. How the bond interest is paid.
   a. **Registered bonds**. Bonds for which the issuing company keeps a record of the names and addresses of all bondholders and pays interest only to those whose names are on file.
   b. **Coupon bonds**. Unregistered bonds for which the issuer has no record of current bondholders but instead pays interest to anyone who can show evidence of ownership. Usually, these bonds have a printed coupon for each interest payment. When a payment is due, the bondholder clips the coupon from the certificate and sends it to the issuer as evidence of bond ownership. The issuer then sends an interest payment to the bondholder.
3. How the bonds mature.
   a. **Term bonds**. Bonds that mature in one single sum on a specified future date.
   b. **Serial bonds**. Bonds that mature in a series of installments.
   c. **Callable bonds**. Term or serial bonds that the issuer can redeem at any time at a specified price.
   d. **Convertible bonds**. Term or serial bonds that can be converted to other securities, such as stocks, after a specified period, at the option of the bondholder. (The accounting for this type of bond is discussed in advanced accounting texts.)

Two other types of bonds that are often encountered are zero-coupon bonds and junk bonds. **Zero-coupon bonds** are issued with no promise of interest payments. The company issuing the bonds promises only to repay a fixed amount at the maturity date. While the idea of having to make no interest payments might be initially appealing to the issuer, remember that the present value of the bond is affected by both the single payment at the end of the bond s life and the annuity payment. If this annuity (interest) payment will not be part of the bond, potential buyers will pay much less for the bond. For this reason, zero-coupon bonds are often referred to as *deep-discount bonds.*

**Junk bonds** are high-risk bonds issued by companies in weak financial condition or with large amounts of debt already outstanding. These bonds typically yield returns of at least 12%, but some may return in excess of 20%. Of course, with these high returns comes greater risk.

## Characteristics of Bonds

When an organization issues bonds, it usually sells them to underwriters (brokers and investment bankers), who in turn sell them to various institutions and to the public. At the time of the original sale, the company issuing the bonds chooses a trustee to represent the bondholders. In most cases, the trustee is a large bank or trust company to which the company issuing the bonds delivers a contract called a bond indenture, deed of trust, or trust indenture. The

**junk bonds** Bonds issued by companies in weak financial condition with large amounts of debt already outstanding; these bonds yield high rates of return because of high risk.

**bond indenture** A contract between a bond issuer and a bond purchaser that specifies the terms of a bond.

**principal (face value or maturity value)** The amount that will be paid on a bond at the maturity date.

**bond maturity date** The date at which a bond principal or face amount becomes payable.

**bond indenture** specifies that in return for an investment of cash by investors, the company promises to pay a specific amount of interest (based on a specified, or stated, rate of interest) each period the bonds are outstanding and to repay the **principal** (also called **face value** or **maturity value**) of the bonds at a specified future date (the **bond maturity date**). It is the duty of the trustee to protect investors and to make sure that the bond issuer fulfills its responsibilities.

The total value of a single bond issue often exceeds several million dollars. A bond issue is generally divided into a number of individual bonds, which may be of varying denominations. The principal, or face value, of each bond is usually $1,000 or a multiple thereof. Note that the price of bonds is quoted as a percentage of $1,000 face value. Thus, a bond quoted at 98 is selling for $980 (98% × $1,000), and a bond quoted at 103 is selling for $1,030 (103% × $1,000). By issuing bonds in small denominations, a company increases the chances that a broad range of investors will be able to compete for the purchase of the bonds. This increased demand usually results in the bonds selling for a higher price.

In most cases, the market price of bonds is influenced by (1) the riskiness of the bonds and (2) the interest rate at which the bonds are issued. The first factor, riskiness of the bonds, is determined by general economic conditions and the financial status of the company selling the bonds, as measured by organizations (**MOODY S** or **STANDARD AND POOR S**, for instance) that regularly assign a rating, or a grade, to all corporate bonds.

Companies strive to earn as high a bond rating as possible because the higher the rating, the lower the interest rate they will have to pay to attract buyers. For example, using the widely cited Moody s bond rating, an Aaa bond is a bond of the highest quality with the least risk of nonpayment. As of October 2000, bonds with this rating were paying interest of approximately 6.6%. A high-risk bond, on the other hand, will have a low rating, which means the company will have to offer a higher rate of interest to attract buyers. For example, as of October 2000, the bonds of financially troubled **CHIQUITA BRANDS** (the banana company) were rated B1 by Moody s, a rating indicating that the bonds were highly speculative. Lenders were requiring an interest rate of more than 30% to induce them to purchase these bonds.

**fyi**

Another type of bond that has arisen in recent years is the Yankee bond. A Yankee bond is a bond issued by a non-U.S. company with all bond-related payments made in U.S. dollars. Non-U.S. companies sometimes choose to pay principal and interest on bonds in U.S. dollars because U.S. dollar amounts are associated with less risk of currency exchange fluctuations than are payments in less stable currencies such as Indonesian rupiah. Lower risk means that the company can pay a lower interest rate to lenders.

**fyi**

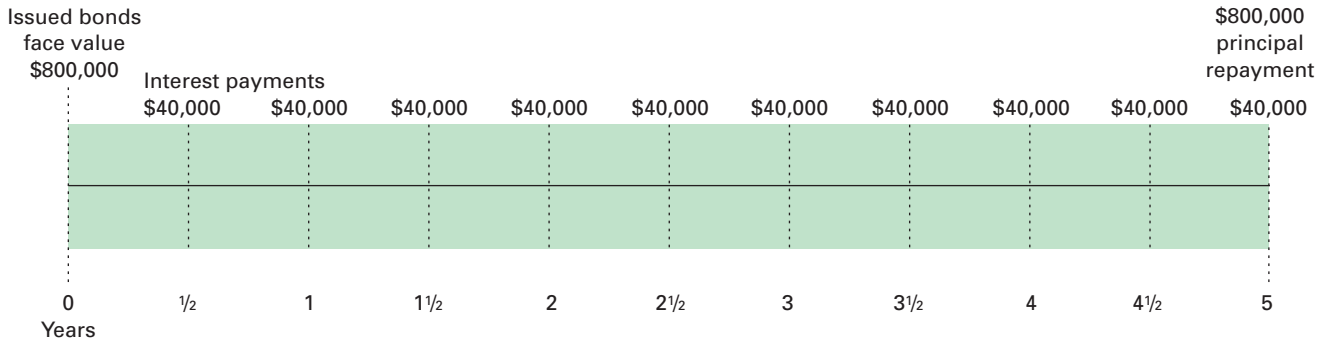
Bonds are bought and sold on trading markets just like stocks. The New York Bond Exchange is the largest exchange of this type.

## to summarize

Bonds are certificates of debt issued by companies or government agencies, guaranteeing a stated interest rate and repayment of the principal at a specified maturity date. Corporations issue bonds as a form of long-term borrowing to finance the acquisition of operating assets, such as land, buildings, and equipment. Bonds can be classified by their level of security (debentures versus secured bonds), by the way interest is paid (registered versus coupon bonds), and by the way they mature (term bonds, serial bonds, callable bonds, and convertible bonds).

## Determining a Bond s Issuance Price

When a company issues bonds, it is generally promising to make two types of payments: (1) a payment of interest of a fixed amount at equal intervals (usually semiannually but sometimes quarterly or annually) over the life of the bond and (2) a single payment the principal, or face value, of the bond at the maturity date. For example, assume that Denver Company issues 10%, five-year bonds with a total face value of $800,000. Interest is to be paid semiannually. This information tells us that Denver Company agrees to pay $40,000 ($800,000 × 0.10 × ‰ year) in interest every six months and also agrees to pay to the investors the principal amount of $800,000 at the end of five years. The following diagram reflects this agreement between Denver Company and the bond investors:




In this example, we assumed that the bonds were issued at their face value of $800,000. However, bonds are frequently issued at a price that is more or less than their face value. The actual price at which bonds are issued is affected by the interest rate investors are seeking at the time the bonds are sold in relation to the interest rate specified by the borrower in the bond indenture. How, then, is the issuance price of bonds determined?

Essentially, present value concepts are used to measure the effect of time on the value of money. The price should equal the present value of the interest payments (an annuity) plus the present value of the bond s face value at maturity. These present values are computed using the **market rate of interest** (also called the **effective rate** or **yield rate**), which is the rate investors expect to earn on their investment. It is contrasted with the **stated rate of interest**, which is the rate printed on the bond (10% in the Denver Company example).

**STOP & THINK** If the market rate of interest is higher than the rate of interest stated on the bonds, will the bonds sell at a price higher or lower than the face value? Think about the question this way: Is the higher rate more attractive to investors, and if it is, what would investors do as a result?

**market rate (effective rate or yield rate) of interest** The actual interest rate earned or paid on a bond investment.

**stated rate of interest** The rate of interest printed on the bond.

**bond discount** The difference between the face value and the sales price when bonds are sold below their face value.

**bond premium** The difference between the face value and the sales price when bonds are sold above their face value.

If the effective rate is equal to the stated rate, the bonds will sell at face value (that is, at $800,000). If the effective rate is higher than the stated rate, the bonds will sell at a **bond discount** (at less than the face value) because the investors desire a higher rate than the company is promising to pay. Likewise, if the effective rate is lower than the stated rate, the bonds will sell at a **bond premium** (at more than face value) because the company is promising to pay a higher rate than the market is paying at that time.

Consider the following scenario: If Company A is issuing bonds with a stated rate of 12% and the market rate for similar bonds is 10%, what will happen to the price of Company A s bonds? Investors, eager to receive a 12% return, will bid the price of the bonds up until the price at which the bonds sell yields a 10% return. The amount paid for the bonds over and above the maturity value is the bond premium. If Company A were issuing bonds with a stated rate of 8%, no one would buy the bonds until the price was lowered sufficiently to allow investors to earn a return of 10%. The difference between the selling price and the maturity value would be the amount of the bond discount.

We will use the Denver Company bonds example (from page 470) to explain how the price is computed in each situation.

**BONDS ISSUED AT FACE VALUE** Denver Company has agreed to issue $800,000 bonds and pay 10% interest, compounded semiannually. Assume that the effective interest rate demanded by investors for bonds of this level of risk is also 10%. Using the effective interest rate, which happens to be the same as the stated rate, the calculation to determine the price at which the bonds will be issued is shown at the top of the next page. (Note that because the interest is compounded semiannually, the interest rate is halved and the five-year bond life is treated as 10 six-month periods.)

The calculation shows why the bonds sell at face value. At the effective rate, the sum of the present value of the interest payments and the payment at maturity is $800,000, which is the issuance price at the stated rate. This equality of present values will occur only when the effective rate and the stated rate are the same.

| | | | |
|---|---|---|---|
| 1. | Semiannual interest payments | $ 40,000 | |
| | Present value of an annuity of 10 payments of $1 at 5% (Table II) | × 7.7217 | |
| | Present value of interest payments | | $308,868 |
| 2. | Maturity value of bonds | $800,000 | |
| | Present value of $1 received 10 periods in the future discounted at 5% (Table I) | × 0.6139 | |
| | Present value of principal amount | | 491,132* |
| 3. | Issuance price of bonds (total present value) | | $800,000 |

*Difference is due to the rounding of the present value factor.

The value of the bonds can also be computed using a business calculator as follows:

**Hewlett-Packard Keystrokes:**

a. **CLEAR ALL**.
b. Set **P/YR** to 1.

1. 800,000 Press **FV**.
2. 40,000 Press **PMT**.
3. 10 Press **N**.
4. 5 Press **I/YR**.
5. Press **PV** for the answer of $800,000.

**BONDS ISSUED AT A DISCOUNT** Denver Company will sell its bonds at less than the face value of $800,000 (at a discount) if the stated rate of interest is less than the effective rate that investors are seeking. To illustrate the issuance of bonds at a discount, assume that the effective rate is 12% compounded semiannually; the stated rate remains 10% compounded semiannually. In this case, the bonds will be issued at a price of $741,124, as shown here:

| | | | |
|---|---|---|---|
| 1. | Semiannual interest payments | $40,000 | |
| | Present value of an annuity of 10 payments of $1 at 6% (Table II) | × 7.3601 | |
| | Present value of interest payments | | $294,404 |
| 2. | Maturity value of bonds | $800,000 | |
| | Present value of $1 received 10 periods in the future discounted at 6% (Table I) | × 0.5584 | |
| | Present value of principal amount | | 446,720 |
| 3. | Issuance price of bonds (total present value) | | $741,124 |

Denver Company will receive less than the $800,000 face value because the stated rate of interest is lower than the effective rate. In this case, there is a discount of $58,876 ($800,000 − $741,124).

The following keystrokes are used to compute the value of the bonds using a business calculator:

**Hewlett-Packard Keystrokes:**

a. **CLEAR ALL**.
b. Set **P/YR** to 1.

1. 800,000 Press **FV**.
2. 40,000 Press **PMT**.
3. 10 Press **N**.
4. 6 Press **I/YR**.
5. Press **PV** for the answer of $741,119.30. This answer differs slightly from the value computed using the tables because of rounding.

**caution**

The most common mistake made in computing bond values is to use the stated rate of interest in calculating the present value of the cash flows. The stated rate of interest is used *only* to compute the amount of the semiannual interest payments. The present value computations are done using the current market rate of interest.

**BONDS ISSUED AT A PREMIUM** The Denver Company bonds will be issued for more than $800,000 (at a premium) when the stated interest rate is higher than the effective rate. Let us now assume that the effective rate is 8% compounded semiannually and that the stated rate is still 10% compounded semiannually. In this case, the bonds will be issued at $864,916, as shown here:

| | | | |
|---|---|---|---|
| 1. | Interest payments | $ 40,000 | |
| | Present value of an annuity of 10 payments of $1 at 4% (Table II) | × 8.1109 | |
| | Present value of interest payments | | $324,436 |
| 2. | Maturity value of bonds | $800,000 | |
| | Present value of $1 received 10 periods in the future discounted at 4% (Table I) | × 0.6756 | |
| | Present value of principal amount | | 540,480 |
| 3. | Issuance price of bonds (total present value) | | $864,916 |

Denver Company will receive more than the $800,000 face value when the bonds are issued because the company has agreed to pay the investors a higher rate of interest than the market rate.

The same calculation can be done using a business calculator as follows:

**Hewlett-Packard Keystrokes:**

a. **CLEAR ALL**.
b. Set **P/YR** to 1.

1. 800,000 Press **FV**.
2. 40,000 Press **PMT**.
3. 10 Press **N**.
4. 4 Press **I/YR**.
5. Press **PV** for the answer of $864,887.17. This answer differs slightly from the value computed using the tables because of rounding.

In all three situations, the 10% stated rate determined the amount of each interest payment. The price of the bonds was determined by discounting the $40,000 of interest payments and the $800,000 face amount at maturity by the effective rate of interest, which may vary from day to day, depending on market conditions. In essence, the issuance price depends on four factors: (1) face value of the bonds, (2) periodic interest payments (face value × stated interest rate), (3) time period, and (4) effective interest rate. Although the bond price is the exact amount that allows investors to earn the interest rate they are seeking, it also reflects the real cost of money to the borrowing company.

Now that you know how to calculate bond values, you may feel ready to move to New York City and become a Wall Street bond trader. Not so fast. There are four steps to computing bond values, as outlined below:

1. Determine the market interest rate.
2. Compute the present value of the maturity amount (using the market interest rate as the discount rate).
3. Compute the present value of the annuity of annual interest payments (using the market interest rate as the discount rate).
4. Add the quantities computed in (2) and (3).

Three of these steps 2, 3, and 4 are very straightforward. These are the steps that you have learned in this chapter. The initial step of determining the market interest rate is where the art and analysis of bond trading are brought to bear. For example, how can you tell whether a company s riskiness requires that the market interest rate on its bonds should be 7.2% or 7.3%? This is an extremely difficult determination to make, and yet it is exactly the type of decision that bond traders must make many times each day.

## to summarize

The price at which bonds are issued is a function of the interest rate investors are seeking when the bonds are issued in relation to the interest rate the borrowing company is promising to pay. The bond s face value, or principal, and future interest payments (face value × stated interest rate) are discounted by the interest rate desired by investors (the effective, yield, or market rate) to arrive at the issuance price of the bonds. Bonds will sell at their face value if the stated interest rate is equal to the effective rate. If the effective rate is higher than the stated rate, the bonds will sell at a discount. If the effective rate is lower than the stated rate, the bonds will sell at a premium. The effective rate used to discount the payments promised by the borrower reflects the real cost of the money borrowed.

## Accounting for Bonds Payable Issued at Face Value

When a company issues bonds, it must account for the issuance (sale) of the bonds, for the interest payments, and for the amortization of any bond premium or discount. Then, at or before maturity, the company must account for the bond s retirement.

The accounting for these four elements depends on the issuance price of the bonds and on the date of issuance in relation to the date on which interest is paid. In the following sections, we explain the accounting for bonds when the issue price is equal to face value. The accounting for bonds issued at a premium or at a discount is discussed in the expanded material section of the chapter. For most of this discussion, we will use the following data:

| | |
|---|---|
| Issuing company | Central Trucking Company |
| Accounting year | Calendar year ending December 31 |
| Face value of bonds issued | $100,000 |
| Stated interest rate | 12% |
| Effective interest rate when issued | 12% |
| Initial date of issuance | January 1, 2003 |
| Date of maturity | January 1, 2013 |
| Interest payment dates | January 1 and July 1 |

Central Trucking Company issued $100,000 bonds with a stated interest rate of 12% on January 1, 2003. The bonds were issued at face value because 12% is the effective, or market, rate of interest for similar bonds. The journal entry to record their issuance on January 1, 2003, is as follows:

| | | |
|---|---|---|
| Cash | 100,000 | |
| Bonds Payable | | 100,000 |
| *Issued $100,000, 12%, 10-year bonds at face value.* | | |

The entry to record the first payment of interest on July 1, 2003, is:

| | | |
|---|---|---|
| Bond Interest Expense | 6,000 | |
| Cash | | 6,000 |
| *Paid semiannual interest on the $100,000, 12%, 10-year bonds ($100,000 × 0.12 × ½ year).* | | |

Because Central Trucking operates on a calendar-year basis, it will need to make the following adjusting entry on December 31, 2003, to account for the interest expense between July 1 and December 31, 2003:

| | | |
|---|---|---|
| Bond Interest Expense | 6,000 | |
| Bond Interest Payable | | 6,000 |
| *To recognize expense for the six months July 1 to December 31, 2003 ($100,000 × 0.12 × ½ year).* | | |

At the end of the accounting period (December 31, 2003), the financial statements will report the following:

| Income Statement | |
|---|---|
| Bond interest expense ($6,000 × 2) | $ 12,000 |
| **Balance Sheet** | |
| Current liabilities: | |
| Bond interest payable | $ 6,000 |
| Long-term liabilities: | |
| Bonds payable (12%, due January 1, 2013) | $100,000 |

On January 1, 2004, when the semiannual interest is paid, the bond interest payable account is eliminated. The January 1 entry is:

| | | |
|---|---|---|
| Bond Interest Payable | 6,000 | |
| Cash | | 6,000 |
| *Paid semiannual bond interest.* | | |

The entries to record the interest expense payments during the remaining nine years will be the same as those made during 2003 and on January 1, 2004. The only other entry required in accounting for these bonds is the recording of their retirement on January 1, 2013. That entry, assuming that all interest has been accounted for, will be:

| | | |
|---|---|---|
| Bonds Payable | 100,000 | |
| Cash | | 100,000 |
| *Retired the $100,000, 10-year, 12% bonds.* | | |

As the preceding entries illustrate, accounting for the issuance of bonds, the payment of the interest, and the retirement of the bonds is relatively simple when the bonds are issued at face value.

## Bond Retirements before Maturity

Bond issues are, by definition, an inflexible form of long-term debt. The issuing company has a set schedule of interest payments and a specified maturity date, usually at least 5 or 10 years from the issuance date. In many cases, however, a company may want to pay off (redeem) and retire its bonds before maturity. This situation might occur when interest rates fall a company uses the money obtained by issuing new bonds at a lower interest rate to retire the older, higher-interest bonds. As a result, the company retains the money it needs for expansion or other long-range projects but pays less interest for using that money.

As noted earlier, callable bonds are issued with an early redemption provision. Although the company usually has to pay a premium (penalty) for the privilege of redeeming (calling) the bonds, the amount of the penalty will probably be less than the amount gained by paying a lower interest rate. With bonds that are not callable, the company simply purchases the bonds in the open market, as available, at the going price.

To illustrate the retirement of bonds before maturity, assume that the Central Trucking Company bonds are now selling in the bond market at 109 and are callable at 110. The company decides to take advantage of the lower interest rate (8%) by issuing new bonds and using the proceeds to pay off the outstanding bonds. Given that the bonds were issued at their face value, the penalty (the call premium) is $10,000. The entry to record the retirement of the bonds at 110 is:

| | | |
|---|---|---|
| Bonds Payable | 100,000 | |
| Loss on Bond Retirement | 10,000 | |
| Cash ($100,000 × 1.10) | | 110,000 |
| *To retire $100,000 of bonds at a call price of 110.* | | |

In this case, the bonds were retired at a loss of $10,000. The loss is probably tolerable because the company expects to pay significantly less interest over the life of the new bond issue than it would have had to continue to pay on the old bonds. Gains and losses on the early retirement of bonds are reported on the income statement as extraordinary gains and losses.

## to summarize

Accounting for bonds involves three steps: (1) accounting for their issuance, (2) accounting for the periodic interest payments, and (3) accounting for their retirement. When bonds are retired at maturity, there is no gain or loss because the amount paid is equal to the face value of the bonds. When bonds are retired before maturity, a gain or loss often results because the price paid to retire the bonds can be different from the carrying value of the bonds. The gain or loss on retirement of bonds is reported on the income statement as an extraordinary item.

**5**

Use debt-related financial ratios to determine the degree of a company s financial leverage and its ability to repay loans.

## USING DEBT-RELATED FINANCIAL RATIOS

As illustrated earlier in the chapter in Exhibit 10-2, an important business issue associated with long-term debt is the determination of how a company wishes to obtain the money it needs to buy necessary assets. A company s leverage is the degree to which the company has borrowed the funds needed for asset acquisitions. This section describes the financial ratios that are commonly used to evaluate the level of a company s financial leverage.

### Debt Ratio and Debt-to-Equity Ratio

**debt ratio** A measure of leverage, computed by dividing total liabilities by total assets.

The **debt ratio** measures the amount of assets supplied by lenders. It is calculated as follows:

$$\text{Debt ratio} = \frac{\text{Total liabilities}}{\text{Total assets}}$$

The computed value of the debt ratio indicates the percentage of a company s funding that has come through borrowing.

The debt ratio for **DISNEY** for 1999 is calculated as follows (the numbers are in millions):

$$\text{Debt ratio} = \frac{\$22{,}704}{\$43{,}679} = 52\%$$

Thus, 52% of Disney s assets are provided by lenders and 48% by stockholders.

**debt-to-equity ratio** The number of dollars of borrowed funds for every dollar invested by owners; computed as total liabilities divided by total stockholders equity.

The **debt-to-equity ratio** also measures the balance of funds being provided by creditors and stockholders. This ratio is calculated by dividing total liabilities by total stockholders eq-

uity. The higher the debt-to-equity ratio, the more debt the company has. The debt-to-equity ratio for Disney is calculated as follows:

$$\text{Debt-to-equity ratio} = \frac{\text{Total liabilities}}{\text{Total stockholders equity}}$$

$$\text{Debt-to-equity ratio} = \frac{\$22{,}704}{\$20{,}975} = 1.08$$

In this case, the debt-to-equity ratio indicates that Disney s debt is about 8% higher than its equity. Note that the debt ratio and the debt-to-equity ratio both indicate the same thing that Disney has acquired just a little bit more of its total financing from borrowing than from stockholders. It doesn t matter which of these two ratios you use to measure a company s leverage; the important thing is that you are consistent and that any ratios you use for comparison have been computed using the same formula.

## Times Interest Earned Ratio

**times interest earned** A measure of a borrower s ability to make required interest payments; computed as income before interest and taxes divided by annual interest expense.

Lenders like to have an indication of the borrowing company s ability to meet the required interest payments. **Times interest earned** is the ratio of the income that is available for interest payments to the annual interest expense. Times interest earned is computed as follows:

$$\text{Times interest earned} = \frac{\text{Income before interest and taxes (operating profit)}}{\text{Annual interest expense}}$$

To illustrate the computation of this ratio, we will return to Disney. For year-end 1999, Disney s interest expense was $612 million, and its operating profit was $4,056 million. This results in times interest earned of 6.6 times, computed as follows:

$$\text{Times interest earned} = \frac{\$4{,}056}{\$612} = 6.6 \text{ times}$$

Disney s times interest earned value of 6.6 times means that its operations in 1999 generated enough profit to be able to pay Disney s interest expense for the year 6.6 times. This suggests that Disney s creditors have a substantial cushion before they need to be concerned about Disney s ability to meet its required periodic interest payments.

---

expanded material

**The present value techniques discussed in this chapter are useful in determining the value of obligations due at some future time. The computations and accounting are similar for interest-bearing notes, mortgages, capital leases, and bonds. However, there are certain complexities associated with these liabilities that deserve additional attention. In this section of the chapter, we discuss the procedures associated with the amortization of a bond discount or premium.**

## 6 BONDS ISSUED AT A DISCOUNT OR AT A PREMIUM

Amortize bond discounts and bond premiums using either the straight-line method or the effective-interest method.

As we have explained, bonds may be issued at a discount or a premium because their stated interest rate may be (and often is) lower or higher than the effective rate. The two rates often dif-

fer because economic conditions in the marketplace change between the date the stated interest is set and the date the bonds are actually sold. Various factors determine this second date for example, the time it takes to print the bonds and the investment banker s decision regarding the best time to offer the bonds. Because the cost to the company for the use of the bond money is really the effective interest rate rather than the stated rate, the discount or premium must be written off (amortized) over the period the bonds are outstanding, and the amortization is treated as an adjustment to bond interest expense.

**straight-line amortization** A method of systematically writing off a bond discount or premium in equal amounts each period until maturity.

**effective-interest amortization** A method of systematically writing off a bond premium or discount that takes into consideration the time value of money and results in an equal interest rate being used for amortization for each period.

There are two methods of amortizing bond discounts and bond premiums: straight-line amortization and effective-interest amortization. With **straight-line amortization**, a company writes off the same amount of discount or premium each period the bonds are held. For example, with a $4,000 discount on a 10-year bond, $400 is amortized each year. **Effective-interest amortization** takes the time value of money into consideration. The amount of discount or premium amortized is the difference between the interest actually incurred (based on the effective rate) and the interest actually paid (based on the stated rate). The straight-line amortization method will be used to explain the accounting for the amortization of discounts and premiums; then the effective-interest method will be explained and illustrated.

## Accounting for Bonds Issued at a Discount

When bonds are issued at a discount, a contra-liability account is used to keep a separate record of the discounted amount. To illustrate, we will assume that the $100,000, 10-year, 12% bonds issued by Central Trucking on January 1, 2003, sold for $98,000. The entry to record the issuance of the bonds is:

| | | |
|---|---|---|
| Cash | 98,000 | |
| Discount on Bonds | 2,000 | |
| Bonds Payable | | 100,000 |
| *Issued $100,000, 12%, 10-year bonds at 98.* | | |

The discount on bonds account represents the difference between the face value of the bonds and the issuance price. This discount is accounted for as additional bond interest expense over the life of the bonds. In other words, if the company receives only $98,000 when the bonds are issued and is required to pay $100,000 at maturity, the $2,000 difference is additional interest. The following analysis shows that total interest on the bonds is $122,000, comprised of the periodic interest payments ($120,000) plus the $2,000 discount.

| | |
|---|---|
| Amount to be paid to bondholders: | |
| Interest paid each year for 10 years ($100,000 × 0.12 × 10) | $120,000 |
| Face value to be paid at maturity | 100,000 |
| Total amount to be paid to bondholders | $220,000 |
| Proceeds received from sale of bonds ($100,000 × 0.98) | 98,000 |
| Total interest expense | $122,000 |
| Average annual interest expense ($122,000/10 years) | $ 12,200 |

Although the $2,000 of additional interest arising from the discount will not be paid until the bonds mature, interest accrues, or accumulates, over time. Thus, each year that the bonds are outstanding, Central Trucking will record bond interest expense for the amount paid at the stated rate ($100,000 × 0.12 = $12,000) and will also recognize a portion of the discount as bond interest expense. In recording the additional bond interest expense, the contra account Discount on Bonds is amortized or written off over the life of the bonds. Using straight-line amortization, an even amount is amortized each period. In the Central Trucking Company example, the semiannual amortization would be $100 ($2,000 discount/10 years × ‰). Bond amortization is recorded when interest payments are made, and the entry on July 1, 2003, is:

| | | |
|---|---|---|
| Bond Interest Expense | 6,100 | |
| Discount on Bonds | | 100 |
| Cash | | 6,000 |
| *Paid semiannual interest on the $100,000, 12%, 10-year bonds ($100,000 × 0.12 × ‰ year) and amortized the bond discount ($2,000/10 years × ‰ year).* | | |

As illustrated, amortization of a discount increases bond interest expense. In this case, the bond interest expense is $6,100, or the sum of the semiannual interest payment and the semiannual amortization of the bond discount. Over the 10-year life of the bonds, the bond interest expense will be increased by $2,000 (20 periods × $100), the amount of the discount. Thus, these bonds pay an effective interest rate of approximately 12.45%[3] per year ($12,200 interest/$98,000 received on the bonds).

The adjusting entry to record the bond interest expense on December 31, 2003, is:

| | | |
|---|---|---|
| Bond Interest Expense | 6,100 | |
| Discount on Bonds | | 100 |
| Bond Interest Payable | | 6,000 |
| *To recognize bond interest expense for the six months July 1 to December 31, 2003.* | | |

The financial statements prepared at December 31, 2003, would report the following:

| Income Statement | | |
|---|---|---|
| Bond interest expense ($6,100 × 2) | | $12,200 |
| **Balance Sheet** | | |
| Current liabilities: | | |
| Bond interest payable | | $ 6,000 |
| Long-term liabilities: | | |
| Bonds payable (12%, due January 1, 2013) | $100,000 | |
| Less unamortized discount ($2,000 − $200) | 1,800 | $98,200 |

The entries to account for the bond interest expense and bond discount amortization during the remaining nine years will be the same as those illustrated. And because the bond discount will be completely amortized at the end of the 10 years, the entry to record the retirement of the bonds will be the same as that for bonds issued at face value. That entry is:

| | | |
|---|---|---|
| Bonds Payable | 100,000 | |
| Cash | | 100,000 |
| *Retired the $100,000, 12%, 10-year bonds.* | | |

## Accounting for Bonds Issued at a Premium

Like discounts, premiums must be amortized over the life of the bonds. To illustrate the accounting for bonds sold at a premium, we will assume that Central Trucking was able to sell its

3 Because straight-line amortization was used, this effective rate of 12.45% is only an approximation that will change slightly each period. An accurate effective rate can be calculated only if the effective-interest method of amortization is used.

$100,000, 12%, 10-year bonds at 103 (that is, at 103% of face value). The entry to record the issuance of these bonds on January 1, 2003, is:

| | | |
|---|---|---|
| Cash | 103,000 | |
| Premium on Bonds | | 3,000 |
| Bonds Payable | | 100,000 |
| *Sold $100,000, 12%, 10-year bonds at 103.* | | |

Premium on Bonds is added to Bonds Payable on the balance sheet and, like Discount on Bonds, is amortized using either the straight-line method or the effective-interest method. Thus, if Central Trucking uses the straight-line method, the annual amortization of the premium will be $300 ($3,000/10 years), or $150 every six months. The entry to record the first semiannual interest payment and the premium amortization of July 1, 2003, is:

| | | |
|---|---|---|
| Bond Interest Expense | 5,850 | |
| Premium on Bonds | 150 | |
| Cash | | 6,000 |
| *Paid semiannual interest on the $100,000, 12%, 10-year bonds ($100,000 × 0.12 × ⅙ year) and amortized the bond premium ($3,000/10 years × ⅙).* | | |

The amortization of a premium on bonds reduces the actual bond interest expense. The following analysis shows why bond interest expense is reduced when bonds are sold at a premium:

| | |
|---|---|
| Amount to be paid to bondholders: | |
| [($12,000 interest × 10 years) + $100,000 face value] | $220,000 |
| Proceeds received from sale of bonds | 103,000 |
| Total interest to be paid | $117,000 |
| Average annual interest expense ($117,000/10 years) | $ 11,700 |

In this case, the annual payments of $12,000 include interest of $11,700 and $300, which represents a partial repayment (one-tenth) of the bond premium. Thus, the effective interest rate is approximately 11.36% ($11,700/$103,000), which is less than the stated rate of 12%.

**caution**

If bonds issued at a premium or discount are retired before maturity, remember that the bond payable and any associated premium or discount would be taken off the books.

The adjusting entry to record the accrual of the interest expense on December 31, 2003, is:

| | | |
|---|---|---|
| Bond Interest Expense | 5,850 | |
| Premium on Bonds | 150 | |
| Bond Interest Payable | | 6,000 |
| *To recognize bond interest expense for the six months July 1 to December 31, 2003.* | | |

The financial statements prepared at December 31, 2003, would report the following:

| **Income Statement** | | |
|---|---|---|
| Bond interest expense ($5,850 × 2) | | $ 11,700 |
| **Balance Sheet** | | |
| Current liabilities: | | |
| Bond interest payable | | $ 6,000 |
| Long-term liabilities: | | |
| Bonds payable (12%, due January 1, 2013) | $100,000 | |
| Plus unamortized premium ($3,000 − $300) | 2,700 | $102,700 |

## Effective-Interest Amortization

**bond carrying value** The face value of bonds minus the unamortized discount or plus the unamortized premium.

Companies can often justify use of the straight-line method of amortizing bond premiums and discounts on the grounds that its results are not significantly different from those of the theoretically more accurate effective-interest method. Nevertheless, because the effective-interest method considers the time value of money, it is required by generally accepted accounting principles if it leads to results that differ significantly from those obtained by the straight-line method.

**f y i**

Note that the table below looks a lot like the mortgage amortization schedule on page 465 and the schedule of computer lease payments on page 467. The reason is that these other schedules also use the effective-interest amortization method.

The effective-interest method amortizes a varying amount each period, which is the difference between the interest actually incurred and the cash actually paid. The amount actually incurred is the changing **bond carrying value** (the face value of the bond minus the unamortized discount or plus the unamortized premium) multiplied by a constant rate, the effective interest rate.

To illustrate the effective-interest method, let s continue with the Central Trucking Company example we have used previously. We will assume that the Central Trucking Company $100,000, 12%, 10-year bonds were issued on January 1, 2003, for $112,463. The bonds pay interest semiannually on January 1 and July 1, so their effective interest rate is approximately 10%[4] a year, or 5% every six months. Because the actual bond interest expense for each interest period is equal to the effective rate of 5% multiplied by the bond carrying value, the amortization (rounded to the nearest $1) for the 10 years is calculated as shown in the following table.

| Period | 1<br>Cash Paid for Interest | 2<br>Semiannual Interest Expense (0.05 × Bond Carrying Value) | 3<br>Premium Amortization (1) − (2) | 4<br>Carrying Value |
|---|---|---|---|---|
| Issuance date | | | | $112,463 |
| Year 1, first six months | $6,000 | $5,623 | $377 | 112,086 |
| Year 1, second six months | 6,000 | 5,604 | 396 | 111,690 |
| Year 2, first six months | 6,000 | 5,585 | 415 | 111,275 |
| Year 2, second six months | 6,000 | 5,564 | 436 | 110,839 |
| Year 3, first six months | 6,000 | 5,542 | 458 | 110,381 |
| Year 3, second six months | 6,000 | 5,519 | 481 | 109,900 |
| Year 4, first six months | 6,000 | 5,495 | 505 | 109,395 |
| Year 4, second six months | 6,000 | 5,470 | 530 | 108,865 |
| Year 5, first six months | 6,000 | 5,443 | 557 | 108,308 |
| Year 5, second six months | 6,000 | 5,415 | 585 | 107,723 |
| Year 6, first six months | 6,000 | 5,386 | 614 | 107,109 |
| Year 6, second six months | 6,000 | 5,355 | 645 | 106,464 |
| Year 7, first six months | 6,000 | 5,323 | 677 | 105,787 |
| Year 7, second six months | 6,000 | 5,289 | 711 | 105,076 |
| Year 8, first six months | 6,000 | 5,254 | 746 | 104,330 |
| Year 8, second six months | 6,000 | 5,217 | 783 | 103,547 |
| Year 9, first six months | 6,000 | 5,177 | 823 | 102,724 |
| Year 9, second six months | 6,000 | 5,136 | 864 | 101,860 |
| Year 10, first six months | 6,000 | 5,093 | 907 | 100,953 |
| Year 10, second six months | 6,000 | 5,047 | 953 | 100,000 |

4 The 10% rate is the rate that will discount the face value of the bonds and the semiannual interest payments to a present value that equals the issuance price of the bonds, computed as follows:

| | | |
|---|---|---|
| Present value of $100,000 at 5% for 20 payments | $100,000 × 0.3769 = | $ 37,690 |
| Present value of $6,000 at 5% for 20 payments | $ 6,000 × 12.4622 = | 74,773 |
| Total present value = issuance price of the bonds | | $112,463 |

In this computation, the $6,000 in column (1) is the actual cash paid each six months. Column (2) shows the interest expense for each six months, which is the amount that will be reported on the income statement. Column (3), which is the difference between columns (1) and (2), represents the amortization of the premium. Column (4) shows the carrying, or book, value of the bonds (that is, the total of the bonds payable and the unamortized bond premium), which is the amount that will be reported on the balance sheet each period. Using the effective-interest method, the bond carrying value is always equal to the present value of the bond obligation. As the carrying value decreases, while the effective rate of interest remains constant, the interest expense also decreases from one period to the next, as illustrated in column (2) of the amortization schedule.

To help you translate this table into the entries for the interest payments and premium amortization at the end of each six-month period, we have provided the semiannual journal entries for year 3.

| | | |
|---|---|---|
| *Year 3, End of First Six Months* | | |
| Bond Interest Expense | 5,542 | |
| Bond Premium | 458 | |
| Cash | | 6,000 |
| *To record effective-interest expense on Central Trucking Company bonds for the first six months of year 3.* | | |
| *Year 3, End of Second Six Months* | | |
| Bond Interest Expense | 5,519 | |
| Bond Premium | 481 | |
| Bond Interest Payable | | 6,000 |
| *To record effective-interest expense on Central Trucking Company bonds for the second six months of year 3.* | | |

Because the straight-line method would show a constant amortization ($12,463/20 = $623.15 per six-month period) on a decreasing bond balance, the straight-line interest rate cannot be constant. When the straight-line results differ significantly from the effective-interest results, generally accepted accounting principles require use of the effective-interest method.

The effective-interest method of amortizing a bond discount is essentially the same as amortizing a bond premium. The main difference is that the bond carrying value is increasing instead of decreasing.

## to summarize

When bonds are issued at a premium or a discount, the premium or discount must be amortized over the life of the bond. A discount or premium results when the market rate and the stated rate are different. Because of this difference, bond interest expense recognized on the income statement is not equal to the amount of cash paid for interest. The objective of amortization is to reflect the actual bond interest expense incurred over the life of the bond. Two methods of amortization are available the straight-line method and the effective-interest method. The straight-line method amortizes an equal amount of premium or discount every period. When the effective-interest method is used, the amount of discount or premium amortized each period is equal to the market rate of interest multiplied by the bond s carrying value.

**table I** The Present Value of $1 Due in *n* Periods*

| Period | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 12% | 14% | 15% | 16% | 18% | 20% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .9901 | .9804 | .9709 | .9615 | .9524 | .9434 | .9346 | .9259 | .9174 | .9091 | .8929 | .8772 | .8696 | .8621 | .8475 | .8333 |
| 2 | .9803 | .9612 | .9426 | .9246 | .9070 | .8900 | .8734 | .8573 | .8417 | .8264 | .7972 | .7695 | .7561 | .7432 | .7182 | .6944 |
| 3 | .9706 | .9423 | .9151 | .8890 | .8638 | .8396 | .8163 | .7938 | .7722 | .7513 | .7118 | .6750 | .6575 | .6407 | .6086 | .5787 |
| 4 | .9610 | .9238 | .8885 | .8548 | .8227 | .7921 | .7629 | .7350 | .7084 | .6830 | .6355 | .5921 | .5718 | .5523 | .5158 | .4823 |
| 5 | .9515 | .9057 | .8626 | .8219 | .7835 | .7473 | .7130 | .6806 | .6499 | .6209 | .5674 | .5194 | .4972 | .4761 | .4371 | .4019 |
| 6 | .9420 | .8880 | .8375 | .7903 | .7462 | .7050 | .6663 | .6302 | .5963 | .5645 | .5066 | .4556 | .4323 | .4104 | .3704 | .3349 |
| 7 | .9327 | .8706 | .8131 | .7599 | .7107 | .6651 | .6227 | .5835 | .5470 | .5132 | .4523 | .3996 | .3759 | .3538 | .3139 | .2791 |
| 8 | .9235 | .8535 | .7894 | .7307 | .6768 | .6274 | .5820 | .5403 | .5019 | .4665 | .4039 | .3506 | .3269 | .3050 | .2660 | .2326 |
| 9 | .9143 | .8368 | .7664 | .7026 | .6446 | .5919 | .5439 | .5002 | .4604 | .4241 | .3606 | .3075 | .2843 | .2630 | .2255 | .1938 |
| 10 | .9053 | .8203 | .7441 | .6756 | .6139 | .5584 | .5083 | .4632 | .4224 | .3855 | .3220 | .2697 | .2472 | .2267 | .1911 | .1615 |
| 11 | .8963 | .8043 | .7224 | .6496 | .5847 | .5268 | .4751 | .4289 | .3875 | .3503 | .2875 | .2366 | .2149 | .1954 | .1619 | .1346 |
| 12 | .8874 | .7885 | .7014 | .6246 | .5568 | .4970 | .4440 | .3971 | .3555 | .3186 | .2567 | .2076 | .1869 | .1685 | .1372 | .1122 |
| 13 | .8787 | .7730 | .6810 | .6006 | .5303 | .4688 | .4150 | .3677 | .3262 | .2897 | .2292 | .1821 | .1625 | .1452 | .1163 | .0935 |
| 14 | .8700 | .7579 | .6611 | .5775 | .5051 | .4423 | .3878 | .3405 | .2992 | .2633 | .2046 | .1597 | .1413 | .1252 | .0985 | .0779 |
| 15 | .8613 | .7430 | .6419 | .5553 | .4810 | .4173 | .3624 | .3152 | .2745 | .2394 | .1827 | .1401 | .1229 | .1079 | .0835 | .0649 |
| 16 | .8528 | .7284 | .6232 | .5339 | .4581 | .3936 | .3387 | .2919 | .2519 | .2176 | .1631 | .1229 | .1069 | .0930 | .0708 | .0541 |
| 17 | .8444 | .7142 | .6050 | .5134 | .4363 | .3714 | .3166 | .2703 | .2311 | .1978 | .1456 | .1078 | .0929 | .0802 | .0600 | .0451 |
| 18 | .8360 | .7002 | .5874 | .4936 | .4155 | .3503 | .2959 | .2502 | .2120 | .1799 | .1300 | .0946 | .0808 | .0691 | .0508 | .0376 |
| 19 | .8277 | .6864 | .5703 | .4746 | .3957 | .3305 | .2765 | .2317 | .1945 | .1635 | .1161 | .0829 | .0703 | .0596 | .0431 | .0313 |
| 20 | .8195 | .6730 | .5537 | .4564 | .3769 | .3118 | .2584 | .2145 | .1784 | .1486 | .1037 | .0728 | .0611 | .0514 | .0365 | .0261 |
| 25 | .7798 | .6095 | .4476 | .3751 | .2953 | .2330 | .1842 | .1460 | .1160 | .0923 | .0588 | .0378 | .0304 | .0245 | .0160 | .0105 |
| 30 | .7419 | .5521 | .4120 | .3083 | .2314 | .1741 | .1314 | .0994 | .0754 | .0573 | .0334 | .0196 | .0151 | .0116 | .0070 | .0042 |
| 40 | .6717 | .4529 | .3066 | .2083 | .1420 | .0972 | .0668 | .0460 | .0318 | .0221 | .0107 | .0053 | .0037 | .0026 | .0013 | .0007 |
| 50 | .6080 | .3715 | .2281 | .1407 | .0872 | .0543 | .0339 | .0213 | .0134 | .0085 | .0035 | .0014 | .0009 | .0006 | .0003 | .0001 |
| 60 | .5504 | .3048 | .1697 | .0951 | .0535 | .0303 | .0173 | .0099 | .0057 | .0033 | .0011 | .0004 | .0002 | .0001 | | |

*The formula used to derive the values in this table was $PV = F \frac{1}{(1 + i)^n}$ where PV = present value, F = future amount to be discounted, $i$ = interest rate, and $n$ = number of periods. The value of 0 to four decimal places.

**table II** The Present Value of an Annuity of $1 per Number of Payments*

| Number of Payments | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 12% | 14% | 15% | 16% | 18% | 20% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.9901 | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.8929 | 0.8772 | 0.8596 | 0.8621 | 0.8475 | 0.8333 |
| 2 | 1.9704 | 1.9416 | 1.9135 | 1.8861 | 1.8594 | 1.8334 | 1.8080 | 1.7833 | 1.7591 | 1.7355 | 1.6901 | 1.6467 | 1.6257 | 1.6052 | 1.5656 | 1.5278 |
| 3 | 2.9410 | 2.8839 | 2.8286 | 2.7751 | 2.7232 | 2.6730 | 2.6243 | 2.5771 | 2.5313 | 2.4869 | 2.4018 | 2.3216 | 2.2832 | 2.2459 | 2.1743 | 2.1065 |
| 4 | 3.9820 | 3.8077 | 3.7171 | 3.6299 | 3.5460 | 3.4651 | 3.3872 | 3.3121 | 3.2397 | 3.1699 | 3.0373 | 2.9137 | 2.8550 | 2.7982 | 2.6901 | 2.5887 |
| 5 | 4.8884 | 4.7135 | 4.5797 | 4.4518 | 4.3295 | 4.2124 | 4.1002 | 3.9927 | 3.8897 | 3.7908 | 3.6048 | 3.4331 | 3.3522 | 3.2743 | 3.1272 | 2.9906 |
| 6 | 5.7985 | 5.6014 | 5.4172 | 5.2421 | 5.0757 | 4.9173 | 4.7665 | 4.6229 | 4.4859 | 4.3553 | 4.1114 | 3.8887 | 3.7845 | 3.6847 | 3.4976 | 3.3255 |
| 7 | 6.7282 | 6.4720 | 6.2303 | 6.0021 | 5.7864 | 5.5824 | 5.3893 | 5.2064 | 5.0330 | 4.8684 | 4.5638 | 4.2883 | 4.1604 | 4.0386 | 3.8115 | 3.6046 |
| 8 | 7.6517 | 7.3255 | 7.0197 | 6.7327 | 6.4632 | 6.2098 | 5.9713 | 5.7466 | 5.5348 | 5.3349 | 4.9676 | 4.6389 | 4.4873 | 4.3436 | 4.0776 | 3.8372 |
| 9 | 8.5660 | 8.1622 | 7.7861 | 7.4353 | 7.1078 | 6.8017 | 6.5152 | 6.2469 | 5.9952 | 5.7590 | 5.3282 | 4.9464 | 4.7716 | 4.6065 | 4.3030 | 4.0310 |
| 10 | 9.4713 | 8.9826 | 8.5302 | 8.1109 | 7.7217 | 7.3601 | 7.0236 | 6.7101 | 6.4177 | 6.1446 | 5.6502 | 5.2161 | 5.0188 | 4.8332 | 4.4941 | 4.1925 |
| 11 | 10.3676 | 9.7868 | 9.2526 | 8.7605 | 8.3064 | 7.8869 | 7.4987 | 7.1390 | 6.8052 | 6.4951 | 5.9377 | 5.4527 | 5.2337 | 5.0286 | 4.6560 | 4.3271 |
| 12 | 11.2551 | 10.5733 | 9.9540 | 9.3851 | 8.8633 | 8.3838 | 7.9427 | 7.5361 | 7.1607 | 6.8137 | 6.1944 | 5.6603 | 5.4206 | 5.1971 | 4.7932 | 4.4392 |
| 13 | 12.1337 | 11.3484 | 10.6350 | 9.9856 | 9.3936 | 8.8527 | 8.3577 | 7.9038 | 7.4869 | 7.1034 | 6.4235 | 5.8424 | 5.5831 | 5.3423 | 4.9095 | 4.5327 |
| 14 | 13.0037 | 12.1062 | 11.2961 | 10.5631 | 9.8986 | 9.2950 | 8.7455 | 8.2442 | 7.7862 | 7.3667 | 6.6282 | 6.0021 | 5.7245 | 5.4675 | 5.0081 | 4.6106 |
| 15 | 13.8651 | 12.8493 | 11.9379 | 11.1184 | 10.3797 | 9.7122 | 9.1079 | 8.5595 | 8.0607 | 7.6061 | 6.8109 | 6.1422 | 5.8474 | 5.5755 | 5.0916 | 4.6755 |
| 16 | 14.7179 | 13.5777 | 12.5611 | 11.6523 | 10.8378 | 10.1059 | 9.4466 | 8.8514 | 8.3126 | 7.8237 | 6.9740 | 6.2651 | 5.9542 | 5.6685 | 5.1624 | 4.7296 |
| 17 | 15.5623 | 14.2919 | 13.1661 | 12.1657 | 11.2741 | 10.4773 | 9.7632 | 9.1216 | 8.5436 | 8.0216 | 7.1196 | 6.3729 | 6.0472 | 5.7487 | 5.2223 | 4.7746 |
| 18 | 16.3983 | 14.9920 | 13.7535 | 12.6593 | 11.6896 | 10.8276 | 10.0591 | 9.3719 | 8.7556 | 8.2014 | 7.2497 | 6.4674 | 6.1280 | 5.8178 | 5.2732 | 4.8122 |
| 19 | 17.2260 | 15.6785 | 14.3238 | 13.1339 | 12.0853 | 11.1581 | 10.3356 | 9.6036 | 8.9501 | 8.3649 | 7.3658 | 6.5504 | 6.1982 | 5.8775 | 5.3162 | 4.8435 |
| 20 | 18.0456 | 16.3514 | 14.8775 | 13.5903 | 12.4622 | 11.4699 | 10.5940 | 9.8181 | 9.1285 | 8.5136 | 7.4694 | 6.6231 | 6.2593 | 5.9288 | 5.3527 | 4.8696 |
| 25 | 22.0232 | 19.5235 | 17.4131 | 15.6221 | 14.0939 | 12.7834 | 11.6536 | 10.6748 | 9.8226 | 9.0770 | 7.8431 | 6.8729 | 6.4641 | 6.0971 | 5.4669 | 4.9476 |
| 30 | 25.8077 | 22.3965 | 19.6004 | 17.2920 | 15.3725 | 13.7648 | 12.4090 | 11.2578 | 10.2737 | 9.4269 | 8.0552 | 7.0027 | 6.5660 | 6.1772 | 5.5168 | 4.9789 |
| 40 | 32.8347 | 27.3555 | 23.1148 | 19.7928 | 17.1591 | 15.0463 | 13.3317 | 11.9246 | 10.7574 | 9.7791 | 8.2438 | 7.1050 | 6.6418 | 6.2335 | 5.5482 | 4.9966 |
| 50 | 39.1961 | 31.4236 | 25.7298 | 21.4822 | 18.2559 | 15.7619 | 13.8007 | 12.2335 | 10.9617 | 9.9148 | 8.3045 | 7.1327 | 6.6605 | 6.2463 | 5.5641 | 4.9995 |
| 60 | 44.9550 | 34.7609 | 27.6756 | 22.6235 | 18.9293 | 16.1614 | 14.0392 | 12.3766 | 11.0480 | 9.9672 | 8.3240 | 7.1401 | 6.6651 | 6.2482 | 5.5553 | 4.9999 |

*The formula used to derive the values in this table was $PV = F\left(\frac{1 - \frac{1}{(1+i)^n}}{i}\right)$ where PV = present value, F = periodic payment to be discounted, $i$ = interest rate, and $n$ = number of payments.

**table III** Amount of $1 Due in *n* Periods

| Period | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 12% | 14% | 15% | 16% | 18% | 20% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.0100 | 1.0200 | 1.0300 | 1.0400 | 1.0500 | 1.0600 | 1.0700 | 1.0800 | 1.0900 | 1.1000 | 1.1200 | 1.1400 | 1.1500 | 1.1600 | 1.1800 | 1.2000 |
| 2 | 1.0201 | 1.0404 | 1.0609 | 1.0816 | 1.1025 | 1.1236 | 1.1449 | 1.1664 | 1.1881 | 1.2100 | 1.2544 | 1.2996 | 1.3225 | 1.3456 | 1.3924 | 1.4400 |
| 3 | 1.0303 | 1.0612 | 1.0927 | 1.1249 | 1.1576 | 1.1910 | 1.2250 | 1.2597 | 1.2950 | 1.3310 | 1.4049 | 1.4815 | 1.5209 | 1.5609 | 1.6430 | 1.7280 |
| 4 | 1.0406 | 1.0824 | 1.1255 | 1.1699 | 1.2155 | 1.2625 | 1.3108 | 1.3605 | 1.4116 | 1.4641 | 1.5735 | 1.6890 | 1.7490 | 1.8106 | 1.9388 | 2.0736 |
| 5 | 1.0510 | 1.1041 | 1.1593 | 1.2167 | 1.2763 | 1.3382 | 1.4026 | 1.4693 | 1.5386 | 1.6105 | 1.7623 | 1.9254 | 2.0114 | 2.1003 | 2.2878 | 2.4883 |
| 6 | 1.0615 | 1.1262 | 1.1941 | 1.2653 | 1.3401 | 1.4185 | 1.5007 | 1.5869 | 1.6771 | 1.7716 | 1.9738 | 2.1950 | 2.3131 | 2.4364 | 2.6996 | 2.9860 |
| 7 | 1.0721 | 1.1487 | 1.2299 | 1.3159 | 1.4071 | 1.5036 | 1.6058 | 1.7138 | 1.8280 | 1.9487 | 2.2107 | 2.5023 | 2.6600 | 2.8262 | 3.1855 | 3.5832 |
| 8 | 1.0829 | 1.1717 | 1.2668 | 1.3686 | 1.4775 | 1.5938 | 1.7182 | 1.8509 | 1.9926 | 2.1436 | 2.4760 | 2.8526 | 3.0590 | 3.2784 | 3.7589 | 4.2998 |
| 9 | 1.0937 | 1.1951 | 1.3048 | 1.4233 | 1.5513 | 1.6895 | 1.8385 | 1.9990 | 2.1719 | 2.3579 | 2.7731 | 3.2519 | 3.5179 | 3.8030 | 4.4355 | 5.1598 |
| 10 | 1.1046 | 1.2190 | 1.3439 | 1.4802 | 1.6289 | 1.7908 | 1.9672 | 2.1589 | 2.3674 | 2.5937 | 3.1058 | 3.7072 | 4.0456 | 4.4114 | 5.2338 | 6.1917 |
| 11 | 1.1157 | 1.2434 | 1.3842 | 1.5395 | 1.7103 | 1.8983 | 2.1049 | 2.3316 | 2.5804 | 2.8531 | 3.4785 | 4.2262 | 4.6524 | 5.1173 | 6.1759 | 7.4031 |
| 12 | 1.1268 | 1.2682 | 1.4258 | 1.6010 | 1.7959 | 2.0122 | 2.2522 | 2.5182 | 2.8127 | 3.1384 | 3.8960 | 4.8179 | 5.3502 | 5.9360 | 7.2876 | 8.9161 |
| 13 | 1.1381 | 1.2936 | 1.4685 | 1.6651 | 1.8856 | 2.1329 | 2.4098 | 2.7196 | 3.0658 | 3.4523 | 4.3635 | 5.4924 | 6.1528 | 6.8858 | 8.5994 | 10.699 |
| 14 | 1.1495 | 1.3195 | 1.5126 | 1.7317 | 1.9799 | 2.2609 | 2.5785 | 2.9372 | 3.3417 | 3.7975 | 4.8871 | 6.2613 | 7.0757 | 7.9875 | 10.147 | 12.839 |
| 15 | 1.1610 | 1.3459 | 1.5580 | 1.8009 | 2.0789 | 2.3966 | 2.7590 | 3.1722 | 3.6425 | 4.1772 | 5.4736 | 7.1379 | 8.1371 | 9.2655 | 11.973 | 15.407 |
| 16 | 1.1726 | 1.3728 | 1.6047 | 1.8730 | 2.1829 | 2.5404 | 2.9522 | 3.4259 | 3.9703 | 4.5950 | 6.1304 | 8.1372 | 9.3576 | 10.748 | 14.129 | 18.488 |
| 17 | 1.1843 | 1.4002 | 1.6528 | 1.9479 | 2.2920 | 2.6928 | 3.1588 | 3.7000 | 4.3276 | 5.0545 | 6.8660 | 9.2765 | 10.761 | 12.467 | 16.672 | 22.186 |
| 18 | 1.1961 | 1.4282 | 1.7024 | 2.0258 | 2.4066 | 2.8543 | 3.3799 | 3.9960 | 4.7171 | 5.5599 | 7.6900 | 10.575 | 12.375 | 14.462 | 19.673 | 26.623 |
| 19 | 1.2081 | 1.4568 | 1.7535 | 2.1068 | 2.5270 | 3.0256 | 3.6165 | 4.3157 | 5.1417 | 6.1159 | 8.6128 | 12.055 | 14.231 | 16.776 | 23.214 | 31.948 |
| 20 | 1.2202 | 1.4859 | 1.8061 | 2.1911 | 2.6533 | 3.2071 | 3.8697 | 4.6610 | 5.6044 | 6.7275 | 9.6463 | 13.743 | 16.366 | 19.460 | 27.393 | 38.337 |
| 30 | 1.3478 | 1.8114 | 2.4273 | 3.2434 | 4.3219 | 5.7435 | 7.6123 | 10.062 | 13.267 | 17.449 | 29.959 | 50.950 | 66.211 | 85.849 | 143.37 | 237.37 |
| 40 | 1.4889 | 2.2080 | 3.2620 | 4.8010 | 7.0400 | 10.285 | 14.974 | 21.724 | 31.409 | 45.259 | 93.050 | 188.88 | 267.86 | 378.72 | 750.37 | 1469.7 |
| 50 | 1.6446 | 2.6916 | 4.3839 | 7.1067 | 11.467 | 18.420 | 29.457 | 46.901 | 74.357 | 117.39 | 289.00 | 700.23 | 1083.6 | 1670.7 | 3927.3 | 9100.4 |
| 60 | 1.8167 | 3.2810 | 5.8916 | 10.519 | 18.679 | 32.987 | 57.946 | 101.25 | 176.03 | 304.48 | 897.59 | 2595.9 | 4383.9 | 7370.1 | 20555. | 56347. |

## table IV Amount of an Annuity of $1 per Number of Payments

| Number of Payments | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 12% | 14% | 15% | 16% | 18% | 20% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| 2 | 2.0100 | 2.0200 | 2.0300 | 2.0400 | 2.0500 | 2.0600 | 2.0700 | 2.0800 | 2.0900 | 2.1000 | 2.1200 | 2.1400 | 2.1500 | 2.1600 | 2.1800 | 2.2000 |
| 3 | 3.0301 | 3.0604 | 3.0909 | 3.1216 | 3.1525 | 3.1836 | 3.2149 | 3.2464 | 3.2781 | 3.3100 | 3.3744 | 3.4396 | 3.4725 | 3.5056 | 3.5724 | 3.6400 |
| 4 | 4.0604 | 4.1216 | 4.1836 | 4.2465 | 4.3101 | 4.3746 | 4.4399 | 4.5061 | 4.5731 | 4.6410 | 4.7793 | 4.9211 | 4.9934 | 5.0665 | 5.2154 | 5.3680 |
| 5 | 5.1010 | 5.2040 | 5.3091 | 5.4163 | 5.5256 | 5.6371 | 5.7507 | 5.8666 | 5.9847 | 6.1051 | 6.3528 | 6.6101 | 6.7424 | 6.8771 | 7.1542 | 7.4416 |
| 6 | 6.1520 | 6.3081 | 6.4684 | 6.6330 | 6.8019 | 6.9753 | 7.1533 | 7.3359 | 7.5233 | 7.7156 | 8.1152 | 8.5355 | 8.7537 | 8.9775 | 9.4420 | 9.9299 |
| 7 | 7.2135 | 7.4343 | 7.6625 | 7.8983 | 8.1420 | 8.3938 | 8.6540 | 8.9228 | 9.2004 | 9.4872 | 10.8090 | 10.7305 | 11.0668 | 11.4139 | 12.1415 | 12.9159 |
| 8 | 8.2857 | 8.5830 | 8.8923 | 9.2142 | 9.5491 | 9.8975 | 10.2598 | 10.6366 | 11.0285 | 11.4359 | 12.2997 | 13.2328 | 13.7268 | 14.2401 | 15.3270 | 16.4991 |
| 9 | 9.3685 | 9.7546 | 10.1591 | 10.5828 | 11.0266 | 11.4913 | 11.9780 | 12.4876 | 13.0210 | 13.5795 | 14.7757 | 16.0853 | 16.7858 | 17.5185 | 19.0859 | 20.7989 |
| 10 | 10.4622 | 10.9497 | 11.4639 | 12.0061 | 12.5779 | 13.1808 | 13.8164 | 14.4866 | 15.1929 | 15.9374 | 17.5487 | 19.3373 | 20.3037 | 21.3215 | 23.5213 | 25.9587 |
| 11 | 11.5668 | 12.1687 | 12.8078 | 13.4864 | 14.2068 | 14.9716 | 15.7836 | 16.6455 | 17.5603 | 18.5312 | 20.6546 | 23.0445 | 24.3493 | 25.7329 | 28.7551 | 32.1504 |
| 12 | 12.6825 | 13.4121 | 14.1920 | 15.0258 | 15.9171 | 16.8699 | 17.8885 | 18.9771 | 20.1407 | 21.2843 | 24.1331 | 27.2707 | 29.0017 | 30.8502 | 34.9311 | 39.5805 |
| 13 | 13.8093 | 14.6803 | 15.6178 | 16.6268 | 17.7130 | 18.8821 | 20.1406 | 21.4953 | 22.9534 | 24.5227 | 28.0291 | 32.0887 | 34.3519 | 36.7862 | 42.2187 | 48.4966 |
| 14 | 14.9474 | 15.9739 | 17.0863 | 18.2919 | 19.5986 | 21.0151 | 22.5505 | 24.2149 | 26.0192 | 27.9750 | 32.3926 | 37.5811 | 40.5047 | 43.6720 | 50.8180 | 59.1959 |
| 15 | 16.0969 | 17.2934 | 18.5989 | 20.0236 | 21.5786 | 23.2760 | 25.1290 | 27.1521 | 29.3609 | 31.7725 | 37.2797 | 43.8424 | 47.5804 | 51.6595 | 60.9653 | 72.0351 |
| 16 | 17.2579 | 18.6393 | 20.1569 | 21.8248 | 23.6575 | 25.6725 | 27.8881 | 30.3243 | 33.0034 | 35.9497 | 42.7535 | 50.9804 | 55.7178 | 60.9250 | 72.9390 | 87.4421 |
| 17 | 18.4304 | 20.0121 | 21.7616 | 23.6975 | 25.8404 | 28.2129 | 30.8402 | 33.7502 | 36.9737 | 40.5447 | 48.8837 | 59.1176 | 65.0751 | 71.6730 | 87.0680 | 105.9306 |
| 18 | 19.6147 | 21.4123 | 23.4144 | 25.6454 | 28.1324 | 30.9057 | 33.9990 | 37.4502 | 41.3013 | 45.5992 | 55.7497 | 68.3941 | 75.8364 | 84.1407 | 103.7403 | 128.1167 |
| 19 | 20.8190 | 22.8406 | 25.1169 | 27.6712 | 30.5390 | 33.7600 | 37.3790 | 41.4463 | 46.0185 | 51.1591 | 63.4397 | 78.9692 | 88.2118 | 98.6032 | 123.4135 | 154.7400 |
| 20 | 22.0190 | 24.2974 | 26.8704 | 29.7781 | 33.0660 | 36.7856 | 40.9955 | 45.7620 | 51.1601 | 57.2750 | 72.0524 | 91.0249 | 102.4436 | 115.3797 | 146.6280 | 186.6880 |
| 30 | 34.7849 | 40.5681 | 47.5754 | 56.0849 | 66.4388 | 79.0582 | 94.4608 | 113.2832 | 136.3075 | 164.4940 | 241.3327 | 356.7868 | 434.7451 | 530.3117 | 790.9480 | 1181.8816 |
| 40 | 48.8864 | 60.4020 | 75.4013 | 95.0255 | 120.7998 | 154.7620 | 199.6351 | 259.0565 | 337.8824 | 442.5926 | 767.0914 | 1342.0251 | 1779.0903 | 2360.7572 | 4163.2130 | 7343.8578 |
| 50 | 64.4632 | 84.5794 | 112.7969 | 152.6671 | 209.3480 | 290.3359 | 406.5289 | 573.7702 | 815.0836 | 1163.9085 | 2400.0182 | 4994.5213 | 7217.7163 | 10435.6488 | 21813.0937 | 45497.1908 |
| 60 | 81.6697 | 114.0515 | 163.0534 | 237.9907 | 353.5837 | 533.1282 | 813.5204 | 1253.2133 | 1944.7921 | 3034.8164 | 7471.6411 | 18535.1333 | 29219.9916 | 46057.5085 | 114189.6665 | 281732.5718 |

# review of learning objectives

**1 Use present value concepts to measure long-term liabilities.** Obligations that will not be paid or otherwise satisfied within one year are classified on the balance sheet as long-term liabilities. Some common types of long-term liabilities are notes payable, mortgages payable, lease obligations, and pension obligations. The present value of a long-term liability is the current value, which is computed by discounting the known future amount using the current interest rate. If the present value amounts of assets or liabilities are known and a future amount is desired, then the present value must be compounded to arrive at a future amount that includes both principal and interest.

**2 Account for long-term liabilities, including notes payable and mortgages payable.** Interest-bearing notes are recorded on the books of the issuer at face value. Interest expense is incurred based on the rate of interest, the carrying value of the note, and the passage of time. Interest Expense is debited for the amount of interest incurred and Cash or Interest Payable is credited.

Mortgage liabilities are paid by a series of regular payments that include interest expense and a reduction of the principal of the mortgage note. The balance sheet liability at any given time is the present value of the remaining mortgage payments.

**3 Account for capital lease obligations and understand the significance of operating leases being excluded from the balance sheet.** A firm can acquire new assets by either purchasing or leasing them. Leasing involves periodic payments over the life of the lease. The lease is classified as an operating lease if it is short term and does not meet any of the criteria of a capital lease. If the lease meets one of the specified capital lease criteria, it is treated as a purchase and referred to as a capital lease. As such, it is recorded as both an asset and a long-term liability. The asset is depreciated and the liability is reduced as lease payments are made. Operating leases are a form of off-balance-sheet financing because the obligation to make the future operating lease payments is not recognized on the balance sheet. However, the amount of future operating lease payments is disclosed in the notes to the financial statements.

**4 Account for bonds, including the original issuance, the payment of interest, and the retirement of bonds.** Accounting for bonds by the borrowing company (the issuer) includes three elements: accounting for their issuance, for interest payments, and for their retirement. If bonds are sold at face value, Cash is debited and Bonds Payable is credited. More often, however, bonds are sold at a premium or a discount. The bond liability is recorded at face value in the bonds payable account, and the premium or discount is recorded in a separate account and added to (in the case of a premium) or subtracted from (in the case of a discount) Bonds Payable on the balance sheet. When interest is paid, Bond Interest Expense is debited and Cash is credited. An adjustment is made to bond interest expense if the bond is sold at a premium or discount. At the date a bond matures, the borrowing company pays the face value to the investors, and the bonds are canceled. If the bonds are retired before maturity, a gain or loss will be recognized when the carrying value of the bonds differs from the amount paid to retire the bonds.

**5 Use debt-related financial ratios to determine the degree of a company s financial leverage and its ability to repay loans.** Higher leverage allows a company to expand without requiring additional stockholder investment. However, higher leverage also makes repayment of debt less certain. Both the debt ratio (total liabilities divided by total assets) and the debt-to-equity ratio (total liabilities divided by total stockholders equity) measure the level of a company s leverage. These ratios are also sometimes computed using only interest-bearing debt instead of total liabilities. The times interest earned ratio (operating income divided by interest expense) measures how much cushion a company has in terms of being able to make its periodic interest payments.

## expanded material

**6 Amortize bond discounts and bond premiums using either the straight-line method or the effective-interest method.** If bonds are issued at a discount, the bond interest expense for the year is the amount of interest paid plus the bond discount amortized during that year. If the bonds are sold at a premium, the bond interest expense for the year is the interest paid minus the bond premium amortized that year. Bond premiums and discounts generally should be amortized using the effective-interest method. The straight-line method is allowed provided that the two methods produce similar results.

## key terms

annuity 460
bond 469
bond discount 471
bond indenture 470
bond maturity date 470
bond premium 471
callable bonds 469
compounding period 458
convertible bonds 469
coupon bonds 469
debentures (unsecured bonds) 469
debt ratio 476
debt-to-equity ratio 476
junk bonds 469
long-term liabilities 456
market rate (effective rate or yield rate) of interest 471
mortgage amortization schedule 464
mortgage payable 463
present value of $1 456
present value of an annuity 460
principal (face value or maturity value) 470
registered bonds 469
secured bonds 469
serial bonds 469
stated rate of interest 471
term bonds 469
times interest earned 477
zero-coupon bonds 469

### expanded material

bond carrying value 481
effective-interest amortization 478
straight-line amortization 478

## review problems

**Accounting for Long-Term Liabilities**

Energy Corporation had the following transactions relating to its long-term liabilities for the year:

a. Issued a $30,000, three-year, 8% note payable to White Corporation for a truck purchased on January 2. Interest is payable annually on December 31 of each year.
b. Issued $300,000 of 12%, 10-year bonds on July 1. The market rate on the date of issuance was 12%. Interest payments are made on June 30 and December 31 of each year.
c. Purchased a warehouse on December 1 by borrowing $250,000. The terms of the mortgage call for monthly payments of $2,194 for 30 years to be made at the end of each month. The interest rate on the mortgage is 10%.

*Required:* Make all journal entries required during the year to account for the above liabilities. Energy Corporation reports on a calendar-year basis.

**Solution**

| | | | |
|---|---|---|---|
| Jan. 2 | Truck | 30,000 | |
| | Note Payable | | 30,000 |
| | *Purchased a truck by issuing a note.* | | |
| July 1 | Cash | 300,000 | |
| | Bonds Payable | | 300,000 |
| | *Issued 12%, 10-year bonds with a face value of $300,000.* | | |
| Dec. 1 | Warehouse | 250,000 | |
| | Mortgage Payable | | 250,000 |
| | *Purchased a warehouse by issuing a 10%, 30-year mortgage.* | | |
| 31 | Interest Expense | 2,400 | |
| | Cash | | 2,400 |
| | *Paid yearly interest on the 3-year, 8% note ($30,000 × 8% = $2,400).* | | |
| | Bond Interest Expense | 18,000 | |
| | Cash | | 18,000 |
| | *Paid semiannual interest payment on 12%, 10-year bonds ($300,000 × 0.12 × $^6/_{12}$ = $18,000).* | | |

*(continued)*

| | | |
|---|---|---|
| Interest Expense | 2,083 | |
| Mortgage Payable | 111 | |
| Cash | | 2,194 |

*Paid first monthly payment on 30-year mortgage (interest: $250,000 × 0.10 × 1/12 = $2,083; reduction in principal: $2,194 − $2,083 = $111).*

expanded material

**Bonds Payable**

Scientific Engineering Company received authorization on July 1, 2003, to issue $300,000 of 12% bonds. The maturity date of the bonds is July 1, 2023. Interest is payable on January 1 and July 1 of each year. The bonds were sold for $289,200 on July 1, 2003 (the same day as authorized). Scientific Engineering uses straight-line amortization.

*Required:*

1. Compute the approximate effective interest rate for the bonds.
2. Record the journal entries on:
   a. July 1, 2003.
   b. December 31, 2003.
   c. January 1, 2004.
   d. July 1, 2004.
   e. December 31, 2004.
3. Record the journal entries on July 1, 2023, for the final interest payment and the retirement of the bonds.

**Solution**

**1. Effective Interest Rate**

Because the bonds sold at a discount, the actual or effective rate of interest is higher than the stated interest rate of 12%. The effective interest rate can be approximated as follows:

Bond discount amortized per year = $10,800/20 periods = $540
Annual interest expense = ($300,000 × 12%) + $540 = $36,540
Effective interest rate = $36,540/$289,200 = 12.63%

**2. Journal Entries**

| | | | | |
|---|---|---|---|---|
| a. | 2003 | | | |
| | July 1 | Cash | 289,200 | |
| | | Discount on Bonds | 10,800 | |
| | | Bonds Payable | | 300,000 |
| | | *To record the sale of $300,000 of 12% bonds due on July 1, 2023.* | | |
| b. | 2003 | | | |
| | Dec. 31 | Bond Interest Expense | 18,270 | |
| | | Discount on Bonds | | 270 |
| | | Bond Interest Payable | | 18,000 |
| | | *To record semiannual bond interest expense on $300,000, 12%, 20-year bonds ($300,000 × 0.12 × ½ year) and amortize bond discount ($10,800 ÷ 20 years × ½ year).* | | |
| c. | 2004 | | | |
| | Jan. 1 | Bond Interest Payable | 18,000 | |
| | | Cash | | 18,000 |
| | | *Paid semiannual interest on $300,000 bonds.* | | |
| d. | 2004 | | | |
| | July 1 | Bond Interest Expense | 18,270 | |
| | | Discount on Bonds | | 270 |
| | | Cash | | 18,000 |
| | | *Paid semiannual interest on $300,000 bonds and amortized bond discount.* | | |

*(continued)*

e.

| | | | | |
|---|---|---|---|---|
| 2004 | | | | |
| Dec. 31 | Bond Interest Expense | | 18,270 | |
| | Discount on Bonds | | | 270 |
| | Bond Interest Payable | | | 18,000 |
| | *To record semiannual bond interest expense on $300,000 bonds and amortize bond discount.* | | | |

**3. Retirement of the Bonds**

| | | | |
|---|---|---|---|
| 2023 | | | |
| July 1 | Bond Interest Expense | 18,270 | |
| | Discount on Bonds | | 270 |
| | Bond Interest Payable | | 18,000 |
| | *To record the bond interest expense and discount amortization up to the date of maturity.* | | |
| | Bonds Payable | 300,000 | |
| | Bond Interest Payable | 18,000 | |
| | Cash | | 318,000 |
| | *To record the payment of interest for six months and retire the bonds at maturity.* | | |

The first entry on July 1, 2023, updates the amortization of the bond discount to the retirement date and reflects the cash owed for interest for the period January 1 July 1, 2023. The second entry reflects payment for retiring the bonds plus payment of the interest owed. Alternatively, Cash could have been credited for $18,000 in the first entry. If Cash had been credited, the second entry would have included only a debit to Bonds Payable and a credit to Cash for $300,000.

## discussion questions

1. The higher the interest rate, the lower the present value of a future amount. Why?
2. What is an annuity?
3. When does the stated amount of a liability equal its present value?
4. What is the difference between a note payable and a mortgage payable?
5. When a mortgage payment is made, a portion of it is applied to interest, and the balance is applied to reduce the principal. How is the amount applied to reduce the principal computed?
6. If a lease is recorded as a capital lease, what is the relationship of the lease payments and the lease liability?
7. Why do companies prefer to classify leases as operating leases rather than as capital leases?
8. To whom do companies usually sell bonds?
9. What are two important characteristics that determine the issuance price of a bond?
10. Identify four different ways in which bonds can mature or be eliminated as liabilities.
11. If a bond s stated interest rate is below the market interest rate, will the bond sell at a premium or at a discount? Why?
12. If you think the market interest rate is going to drop in the near future, should you invest in bonds?
13. When do you think bonds will sell at or near face value?
14. Explain why bonds retired before maturity may result in a gain or loss to the issuing company.
15. What does the debt ratio measure?
16. From the standpoint of a lender, which is more attractive: a high times interest earned ratio or a low times interest earned ratio? Explain.

### expanded material

17. What type of account is Discount on Bonds?
18. Why does the amortization of a bond discount increase the book value of bonds?
19. Why is the effective-interest amortization method more theoretically appropriate than the straight-line amortization method?
20. What is the carrying value of a bond?
21. How does the carrying value of a bond affect the accounting for bonds payable under the effective-interest method?
22. If the effective rate of interest for a bond is greater than its stated rate of interest, explain why the annual bond interest expense will be different from the periodic cash interest payments to the bondholders.

## discussion cases

### CASE 10-1 PRESENT VALUE CONCEPTS

Hamburg Company recently began business and purchased a large facility to make beach clothing. Hamburg Company managed to make a small profit in its initial year of operations, although it used all its cash to purchase inventory and equipment. After preparing its tax return for the year, Hamburg s managers realized that they could pay less taxes than they thought. Because IRS accelerated depreciation methods allow for higher depreciation expense than the straight-line method the company is using for financial reporting purposes, Hamburg can claim more depreciation expense than it thought it could and can reduce taxable income by $30,000. However, Hamburg s managers know that the two depreciation methods will eventually even out because the difference is only temporary and will create a deferred income tax liability, which must be recorded on the books. The managers are very conservative, though, and would rather pay the additional taxes now than record a liability that must be paid in the future, even if they must borrow the money from a bank to pay the extra taxes. They have come to you for advice. What would you tell them?

### CASE 10-2 DEBT AND EQUITY FINANCING

Berlin Company is in a world of hurt. For the past 15 years, the company has been the exclusive toy supplier to Infants-R-Us toy stores. Unfortunately for Berlin Company, Infants-R-Us just declared bankruptcy and went out of business. Berlin is the supplier for a few local toy stores, but Infants-R-Us was by far its largest customer. Berlin s managers believe that they can save the company if they can raise enough money to develop a new product line of a popular toy, Nano Babies. Developing the new product line will require a considerable investment, however. Berlin is trying to decide the best way to finance the investment. It has found a bank that will loan it the money at 18%, a very high rate but the only one it can get because of its precarious financial position. Berlin can also issue bonds to raise the money, but because of investors concerns about the future viability of the company, the only kind of bonds investors will buy are high-interest junk bonds at an interest rate of 17%. Even then, there is concern that the bonds will be discounted when they are marketed. Which financing alternative would you recommend to the company? If you were an investor, would you buy Berlin Company s bonds?

## exercises

### EXERCISE 10-1 COMPUTING THE PRESENT VALUE OF A SINGLE SUM

Find the present value (rounded to the nearest dollar) of:

1. $15,000 due in 5 years at 8% compounded annually.
2. $25,000 due in 8½ years at 10% compounded semiannually.
3. $9,500 due in 4 years at 12% compounded quarterly.
4. $20,000 due in 20 years at 8% compounded semiannually.

### EXERCISE 10-2 COMPUTING THE FUTURE VALUE OF A SINGLE SUM

Compute the future value (rounded to the nearest dollar) of the following investments:

1. $10,209 invested to earn interest at 8% compounded annually for 5 years.
2. $10,908 invested to earn interest at 10% compounded semiannually for 8½ years.

3. $5,920 invested to earn interest at 12% compounded quarterly for 4 years.
4. $4,166 invested to earn interest at 8% compounded semiannually for 20 years.

**EXERCISE 10-3**

### COMPUTING THE PRESENT VALUE OF AN ANNUITY

What is the present value (rounded to the nearest dollar) of an annuity of $8,000 per year for five years if the interest rate is:

1. 8% compounded annually.
2. 10% compounded annually.

**EXERCISE 10-4**

### COMPUTING THE AMOUNT OF PERIODIC PAYMENTS

U-Crane Company has just borrowed $100,000. The loan is to be repaid in regular annual payments made at the end of each year. What is the amount of each annual payment under the following sets of terms:

1. Interest rate of 10% compounded annually; repayment in five annual payments.
2. Interest rate of 12% compounded annually; repayment in 10 annual payments.

**EXERCISE 10-5**

### ACCOUNTING FOR LONG-TERM NOTE PAYABLE

Karl Company borrowed $25,000 on a two-year, 12% note dated October 1, 2002. Interest is payable annually on October 1, 2003, and October 1, 2004, the maturity date of the note. The company prepares its financial statements on a calendar-year basis. Prepare all journal entries relating to the note for 2002, 2003, and 2004.

**EXERCISE 10-6**

### ACCOUNTING FOR LONG-TERM NOTE PAYABLE

Silmaril, Inc., borrowed $25,000 from First National Bank by issuing a three-year, 10% note dated July 1, 2002. Interest is payable semiannually on December 31 and June 30. The principal amount is to be repaid in full on June 30, 2005. Silmaril, Inc., reports on a calendar-year basis. Prepare all journal entries relating to the note during 2002, 2003, 2004, and 2005.

**EXERCISE 10-7**

### ACCOUNTING FOR A MORTGAGE

Johnson Enterprises borrowed $100,000 on July 1, 2003, to finance the purchase of a building. The mortgage requires payments of $1,075 to be made at the end of every month for 15 years with the first payment being due on July 31, 2003. The interest rate on the mortgage is 10%.

1. Prepare a mortgage amortization schedule for 2003.
2. How much interest will be paid in 2003?
3. By how much will the principal amount of the mortgage be reduced by the end of 2003?

**EXERCISE 10-8**

### ACCOUNTING FOR A MORTGAGE

On January 1, 2003, Gandalf, Inc., borrowed $50,000 to finance the purchase of machinery. The terms of the mortgage require payments to be made at the end of every month with the first payment being due on January 31, 2003. The length of the mortgage is five years, and the mortgage carries an interest rate of 12%.

1. Compute the amount of the monthly payment.
2. Prepare a mortgage amortization schedule for 2003.
3. Prepare the journal entry to be made on January 31, 2003, when the first payment is made.
4. For the remainder of the year, how will the journal entries relating to the mortgage differ from the one made on January 31?

**EXERCISE 10-9**

### LEASE ACCOUNTING

Temple Corporation signed a lease to use a machine for four years. The annual lease payment is $10,500 payable at the end of each year.

1. Record the lease, assuming that the lease should be accounted for as a capital lease and the applicable interest rate is 10%. (Round to the nearest dollar.)
2. For the initial year, record the annual lease payment.

## EXERCISE 10-10 LEASE ACCOUNTING

Digital, Inc., leased computer equipment from Young Leasing Company on January 2, 2003. The terms of the lease required annual payments of $4,141 for five years beginning on December 31, 2003. The interest rate on the lease is 14%.

1. Assuming the lease qualifies as an operating lease, what journal entry would be made on January 2 to record the leased asset?
2. If the lease qualifies as an operating lease, what journal entry would be made when the first payment is made on December 31, 2003?
3. Provide the journal entry made on January 2, 2003, assuming the lease qualifies as a capital lease.
4. Provide the journal entry made on December 31, 2003, to record the first lease payment, assuming a capital lease.

## EXERCISE 10-11 ISSUANCE PRICE OF BONDS

Hanover Company issued five-year bonds on January 1. The face value of the bonds is $56,000. The stated interest rate on the bonds is 10%. The market rate of interest at the time of issuance was 8%. The bonds pay interest semiannually. Calculate the issuance price of the bonds.

## EXERCISE 10-12 ISSUANCE PRICE OF BONDS

Bremen Company issued five-year bonds on January 1. The face value of the bonds is $56,000. The stated interest rate on the bonds is 8%. The market rate of interest at the time of issuance was 10%. The bonds pay interest semiannually. Calculate the issuance price of the bonds.

## EXERCISE 10-13 ACCOUNTING FOR BONDS ISSUED AT FACE VALUE

Romulus, Inc., issued $500,000 of 10%, five-year bonds at face value on July 1, 2003. Interest on the bonds is payable semiannually on December 31 and June 30.

1. Provide the journal entry to record the issuance of the bonds on July 1, 2003.
2. Provide the journal entry made on December 31, 2003, to account for these bonds.
3. On September 29, 2004, Romulus elected to retire the bonds early. The market price of the bonds on this date was $486,000. Provide the journal entries to record the early retirement.
4. Why do you think Romulus elected to retire the bonds early?

## EXERCISE 10-14 ACCOUNTING FOR BONDS ISSUED AT FACE VALUE

Rikker Company issued $600,000 of 12%, 10-year bonds at face value on October 1, 2003. The bonds pay interest on April 1 and October 1. Rikker uses the calendar year for financial reporting purposes.

1. Provide the journal entry to record the bond issuance on October 1, 2003.
2. Provide the journal entry to record interest expense on December 31, 2003.
3. Provide the journal entries made during 2004 relating to the bond.
4. On February 14, 2004, Rikker elected to retire the bond issue early. The market price on the day of retirement was $605,000. Provide the journal entries to record the bond retirement.
5. Why do you think Rikker elected to retire the bonds early?

## EXERCISE 10-15 COMPUTATION OF DEBT-RELATED FINANCIAL RATIOS

The following information comes from the financial statements of Willard Hammond Company:

| | |
|---|---|
| Long-term debt | $30,000 |
| Total liabilities | 48,000 |
| Total stockholders equity | 25,000 |
| Operating income | 7,000 |
| Interest expense | 3,000 |

Compute the following ratio values:

1. Debt ratio.
2. Debt-to-equity ratio.
3. Times interest earned.

## EXERCISE 10-16 IMPACT OF CAPITALIZING THE VALUE OF OPERATING LEASES

The following information comes from the financial statements of Karlla Peterson Company:

| | |
|---|---|
| Total liabilities | $100,000 |
| Total stockholders equity | 80,000 |

In addition, Karlla Peterson has a large number of operating leases. The payments on these operating leases total $20,000 per year for the next 15 years. The present value of the economic obligation associated with these operating leases is $150,000. Of course, because these are operating leases, this economic obligation is off the balance sheet.

Compute the following ratio values:

1. Debt ratio. HINT: Remember the accounting equation.
2. Debt-to-equity ratio.
3. Debt-to-equity ratio assuming that Karlla Peterson s operating leases are accounted for as capital leases.
4. Debt ratio assuming that Karlla Peterson s operating leases are accounted for as capital leases.

expanded material

## EXERCISE 10-17 ACCOUNTING FOR BONDS ISSUED AT A DISCOUNT

Hawaii Equipment Company issued $300,000 of 8%, five-year bonds at 97 on June 30, 2003. Interest is payable on June 30 and December 31. The company uses the straight-line method to amortize bond premiums and discounts. The company s fiscal year is from February 1 through January 31.

Prepare all necessary journal entries to account for the bonds from the date of issuance through June 30, 2004. Also record the retirement of the bonds on June 30, 2008, assuming that all interest has been paid and that the discount has been fully amortized.

## EXERCISE 10-18 ACCOUNTING FOR BONDS ISSUED AT A PREMIUM

Sealon Corporation issued $100,000 of 10%, 10-year bonds at 102 on April 1, 2003. Interest is payable semiannually on April 1 and October 1. Sealon Corporation uses the calendar year for financial reporting.

1. Record the necessary entries to account for these bonds on the following three dates. (Use the straight-line method to amortize the bond premium.)
   a. April 1, 2003.
   b. October 1, 2003.
   c. December 31, 2003.
2. Show how the bonds would be reported on the balance sheet of Sealon Corporation on December 31, 2003.

## EXERCISE 10-19 EFFECTIVE-INTEREST CALCULATION

Determine the *approximate* effective rate of interest for $300,000, 8%, five-year bonds issued at 95. (Assume straight-line amortization.)

## EXERCISE 10-20 BOND AMORTIZATION SCHEDULE

The following is a partially completed amortization schedule prepared for the Liggett Company to account for its three-year bond issue with a face value of $50,000. The schedule cov-

ers the first three semiannual interest payment dates. Amounts are rounded to the nearest dollar. Compute the missing numbers.

| Year | Interest Paid | Bond Expense | Premium Amortized | Bonds Payable Carrying Value |
|---|---|---|---|---|
| 0 | | | | $52,537 |
| ½ | (1) | $2,627 | (2) | 52,164 |
| 1 | $3,000 | (3) | $392 | (4) |
| 1½ | (5) | (6) | (7) | (8) |

## EXERCISE 10-21 ACCOUNTING FOR BONDS

Tanner Corporation, a calendar-year firm, is authorized to issue $400,000 of 12%, 10-year bonds dated May 1, 2003, with interest payable semiannually on May 1 and November 1.

Amortization of bond premiums or discounts is recorded using the straight-line amortization method. Prepare journal entries to record the following events, assuming that the bonds are sold at 96 on May 1, 2003.

1. The bond issuance on May 1, 2003.
2. Payment of interest on November 1, 2003.
3. Adjusting entry on December 31, 2003.
4. Payment of the interest on May 1, 2004.

# problems

## PROBLEM 10-1 PRESENT AND FUTURE VALUE COMPUTATIONS

*Required:*

1. Determine the present value in each of the following situations:
   a. A $5,000 loan to be repaid in full at the end of three years. Interest on the loan is payable quarterly. The interest rate is 12% compounded quarterly.
   b. A two-year note for $8,000 bearing interest at an annual rate of 10%, compounded semiannually. Interest is payable semiannually.
   c. A five-year mortgage to be paid in monthly installments of $1,000. The interest rate is 12% compounded monthly.
2. Determine the future value in each of the following situations:
   a. An investment of $10,000 today to earn interest at 6% compounded semiannually to provide for a down payment on a house five years from now.
   b. An investment of $25,000 today to earn interest at 8% compounded quarterly that is designated for a charitable contribution 10 years from now when the donor retires.

## PROBLEM 10-2 PRESENT AND FUTURE VALUE COMPUTATIONS

*Required:*

1. Compute the present value for each of the following situations, assuming an interest rate of 10% compounded annually. (Round amounts to the nearest dollar.)
   a. A single payment of $30,000 due on a mortgage five years from now.
   b. A series of payments of $5,000 each, due at the end of each year for five years.
   c. A five-year, 10% loan of $25,000, with interest payable annually, and the principal due in five years.
2. Compute the future value amounts (rounded to the nearest dollar) in each of the following situations:
   a. A $20,000 lump-sum investment today that will earn interest at 10% compounded annually over five years.

b. A $5,000 lump-sum investment today that will earn interest at 8%, compounded quarterly to provide money for a child s college education 15 years from now.

## PROBLEM 10-3 COMPUTING THE AMOUNT OF PERIODIC PAYMENTS

Kenneth J. Nelson has just purchased a new car for $35,000. He paid $5,000 down and signed a note for the remaining $30,000. The interest rate on the note is 12% compounded monthly, or 1% per month.

*Required:*

1. Compute the amount of Mr. Nelson s monthly payment if he plans to pay off the $30,000 note in 30 monthly payments. Remember: The interest rate is 1% per month.
2. Repeat (1) assuming that Mr. Nelson wishes to repay the note in 60 monthly payments.
3. Assume that Mr. Nelson decides to repay the note in 60 monthly payments. What is the balance remaining on the note immediately after he makes the 30th payment? HINT: Compute the present value of the remaining 30 payments.

## PROBLEM 10-4 ACCOUNTING FOR NOTES PAYABLE

Sweet s Candy Company needed cash for its current business operations. On January 1, 2002, the company borrowed $8,000 on a two-year, interest-bearing note from Peterson Bank at an annual interest rate of 10%. Interest is payable annually on January 1, and the note matures January 1, 2004. Sweet s Candy Company also borrowed $4,500 from Laurence National Bank on January 1, 2002, signing a three-year, 11% note due on January 1, 2005, with interest payable annually on January 1.

*Required:*

Prepare all journal entries relating to the two notes for 2002, 2003, 2004, and 2005. Assume that Sweet s Candy Company uses the calendar year for financial reporting. (Round all amounts to the nearest dollar.)

## PROBLEM 10-5 ACCOUNTING FOR NOTES PAYABLE

During 2002, Kenan Corporation had the following transactions relating to long-term liabilities:

Apr. 1 Purchased a machine costing $200,000 from Perry Corporation. Issued a two-year, interest-bearing note with interest payable on April 1 of each year. The note matures on April 1, 2004, and carries an interest rate of 9%.

July 1 Borrowed $30,000 from Northern National Bank. The terms of the note require semi-annual payments of interest on December 31 and June 30. The note matures in two years and carries an interest rate of 8%.

*Required:*

1. Prepare the journal entries made on April 1 and July 1 to record the issuance of these two notes.
2. Prepare all journal entries made on December 31, 2002.
3. Prepare all journal entries made during 2003.

## PROBLEM 10-6 ACCOUNTING FOR A MORTGAGE

On November 1, 2003, Hill Company arranges with an insurance company to borrow $200,000 on a 20-year mortgage to purchase land and a building to be used in its operations. The land and the building are pledged as collateral for the loan, which has an annual interest rate of 12%, compounded monthly. The monthly payments of $2,200 are made at the end of each month, beginning on November 30, 2003.

*Required:*

1. Prepare the journal entry to record the purchase of the land and building, assuming that $40,000 of the purchase price is assignable to the land.
2. Prepare the journal entries on November 30 and December 31 for the monthly payments on the mortgage.
3. **Interpretive Question:** Explain generally how the remaining liability at December 31, 2003, will be reported on the company s balance sheet dated December 31, 2003.

## PROBLEM 10-7 LEASE ACCOUNTING

On January 1, 2002, Linda Lou Foods, Inc., leased a tractor. The lease agreement qualifies as a capital lease and calls for payments of $7,000 per year (payable each year on January 1, starting in 2003) for eight years. The annual interest rate on the lease is 8%. Linda Lou Foods uses a calendar-year reporting period.

*Required:*

1. Prepare the journal entries for the following dates:
   a. January 1, 2002, to record the leasing of the tractor.
   b. December 31, 2002, to recognize the interest expense for the year 2002.
   c. January 1, 2003, to record the first lease payment.
2. Prepare the appropriate journal entries at December 31, 2003, and January 1, 2004.
3. **Interpretive Question:** Explain briefly how the leased asset is accounted for annually.

## PROBLEM 10-8 LEASE ACCOUNTING

Exploration, Inc., leased a starship on January 2, 2003. Terms of the lease require annual payments of $41,208 per year for five years. The interest rate on the lease is 12%, and the first payment is due on December 31, 2003.

*Required:*

1. Compute the present value of the lease payments.
2. Assuming the lease qualifies as a capital lease, prepare the journal entry to record the lease.
3. Prepare the journal entry to record the first lease payment on December 31, 2003, and to depreciate the leased asset. Exploration, Inc., uses the straight-line method for depreciating all long-term assets.
4. **Interpretive Question:** How would the leased asset, and its associated liability, be disclosed on the balance sheet prepared on December 31, 2003?

## PROBLEM 10-9 ISSUANCE PRICE OF BONDS

Patterson Company issued 30-year bonds on June 30. The face value of the bonds is $750,000. The stated interest rate on the bonds is 6%. The market rate of interest at the time of issuance was 4%. Patterson also issued another set of bonds on August 31. These bonds were 20-year bonds and had a face value of $556,000. The stated rate of interest on these bonds was 5%. The market rate of interest at the time these bonds were issued was 8%. Both sets of bonds pay interest semiannually.

*Required:*

Calculate the issuance price of these bonds.

## PROBLEM 10-10 ACCOUNTING FOR BONDS

On July 1, 2003, Paramount, Inc. issued $500,000, 8%, 30-year bonds with interest paid semiannually on January 1 and July 1. The bonds were sold when the market rate of interest was 8%. On October 1, 2006, the bonds were retired when their fair market value was $495,000.

*Required:*

1. Demonstrate, using the present value tables, that the bonds were sold for $500,000.
2. Provide the journal entry made on July 1 to record the issuance of the bonds.
3. Provide the journal entry made on December 31, 2003, relating to interest.
4. Provide the journal entries to record the retirement of the bonds.

## PROBLEM 10-11 ACCOUNTING FOR BONDS

Columbia Enterprises issued $1 million, 10%, 20-year bonds on October 1, 2002. Interest payment dates are April 1 and October 1. The bonds were sold at face value.

*Required:*

1. Provide the journal entry to record the initial issuance of the bonds.
2. Provide the required journal entry on December 31, 2002.
3. Provide all journal entries relating to the bonds made during 2003.

## PROBLEM 10-12 REPORTING LIABILITIES ON THE BALANCE SHEET

The following list of accounts is taken from the adjusted trial balance of Goforth Company.

| | |
|---|---|
| Accounts Payable | $45,000 |
| Notes Payable (due in 6 months) | 24,000 |
| Income Taxes Payable | 18,000 |
| Unearned Sales Revenue | 27,500 |
| Notes Payable (due in 2 years) | 40,000 |
| Prepaid Insurance | 6,200 |
| Accounts Receivable | 53,000 |
| Current Portion of Mortgage Payable | 12,300 |
| Mortgage Payable (due beyond 1 year) | 93,000 |
| Retained Earnings | 91,400 |
| Property Taxes Payable | 8,700 |
| Salaries & Wages Payable | 15,200 |
| Sales Tax Payable | 3,100 |

*Required:* Prepare the liabilities section of the company s balance sheet.

## PROBLEM 10-13 REPORTING LIABILITIES ON THE BALANCE SHEET

The following amounts are shown on the Plymouth Company s adjusted trial balance for the year 2003:

| | |
|---|---|
| Accounts Payable | $ 36,000 |
| Property Taxes Payable | 6,300 |
| Short-Term Notes Payable | 44,000 |
| Mortgage Payable (due within 1 year) | 28,000 |
| Mortgage Payable (due after 1 year) | 300,000 |
| Accrued Interest on Mortgage Payable | 3,000 |
| Lease Liability (Current Portion) | 58,000 |
| Lease Liability (Long Term) | 414,000 |
| Rent Payable | 70,000 |
| Income Taxes Payable | 50,000 |
| Federal & State Unemployment Taxes Payable | 16,000 |

*Required:* Prepare the liabilities section of Plymouth Company s balance sheet at December 31, 2003.

## PROBLEM 10-14 COMPUTATION OF DEBT-RELATED FINANCIAL RATIOS

The following information comes from the financial statements of Ron Winmill Company:

| | |
|---|---|
| Long-term debt | $180,000 |
| Total liabilities | 230,000 |
| Total stockholders equity | 150,000 |
| Current assets | 80,000 |
| Earnings before income taxes | 11,000 |
| Interest expense | 23,000 |

*Required:* Compute the following ratio values. State any assumptions that you make.

1. Current ratio.
2. Debt ratio.
3. Debt-to-equity ratio.
4. Times interest earned.
5. **Interpretive Question:** You are a bank manager considering making a new $20,000 loan to Ron Winmill that would replace part of the existing long-term debt. You expect Ron Winmill to repay your loan in two years. Which of the ratios computed in (1) through (4) would be most useful to you in evaluating whether to make the loan to Ron Winmill?

## PROBLEM 10-15 IMPACT OF CAPITALIZING THE VALUE OF OPERATING LEASES

The following information comes from the financial statements of Travis Campbell Company:

| | |
|---|---|
| Total liabilities | $100,000 |
| Total stockholders equity | 80,000 |
| Property, plant, and equipment | 110,000 |
| Sales | 500,000 |
| Earnings before income taxes | 11,000 |
| Interest expense | 23,000 |

In addition, Travis Campbell has a large number of operating leases. The payments on these operating leases total $30,000 per year for the next 10 years. The present value of the economic obligation associated with these operating leases is $180,000. Of course, because these are operating leases, this economic obligation is off the balance sheet.

*Required:* Compute the following ratio values:

1. Debt ratio. HINT: Remember the accounting equation.
2. Debt ratio assuming that Travis Campbell s operating leases are accounted for as capital leases.
3. Asset turnover (sales/total assets).
4. Asset turnover assuming that Travis Campbell s operating leases are accounted for as capital leases.
5. **Interpretive Question:** You are Travis Campbell s banker. You are concerned that the times interest earned ratio is not accurately reflecting the risk that Travis Campbell will not meet its fixed annual payments because most of those fixed payments are operating lease payments, not interest payments. Design an alternative ratio that will reflect the fact that, like interest payments, operating lease payments are fixed obligations that must be covered through operating profits each year. Compute the value for the ratio that you have designed.

expanded material

## PROBLEM 10-16 ACCOUNTING FOR BONDS

Nemo Company authorized and sold $90,000 of 10%, 15-year bonds on April 1, 2003. The bonds pay interest each April 1, and Nemo s year-end is December 31.

*Required:*

1. Prepare journal entries to record the issuance of Nemo Company s bonds under each of the following three assumptions:
   a. Sold at 97.
   b. Sold at face value.
   c. Sold at 105.
2. Prepare adjusting entries for the bonds on December 31, 2003, under all three assumptions. (Use the straight-line amortization method.)
3. Show how the bond liabilities would appear on the December 31, 2003, balance sheet under each of the three assumptions.
4. **Interpretive Question:** What condition would cause the bonds to sell at 97? At 105?

## PROBLEM 10-17 ACCOUNTING FOR BONDS ISSUED AT A PREMIUM

On March 1, 2003, Devone Corporation issued $50,000 of 10%, five-year bonds at 118. The bonds were dated March 1, 2003, and interest is payable on March 1 and September 1. Devone records amortization using the straight-line method. Devone s financial reporting year ends on December 31.

*Required:* Provide all necessary journal entries on each of the following dates:

1. March 1, 2003.
2. September 1, 2003.
3. December 31, 2003.
4. March 1, 2008.

## PROBLEM 10-18 BONDS RETIRED AT MATURITY

Stottard Company issued $450,000 of 10%, 10-year bonds on June 1, 2002, at 103. The bonds were dated June 1, and interest is payable on June 1 and December 1 of each year.

*Required:*

1. Record the issuance of the bonds on June 1, 2002. (Round to the nearest dollar.)
2. Record the interest payment on December 1, 2002. Stottard uses the straight-line method of amortization.
3. Record the interest accrual on December 31, 2002, including amortization.
4. Record the journal entries required on June 1, 2012, when the bonds mature.

## PROBLEM 10-19 STRAIGHT-LINE VERSUS EFFECTIVE-INTEREST AMORTIZATION

Cyprus Corporation issued $150,000 of bonds on January 1, 2003, to raise funds to buy some special machinery. The maturity date of the bonds is January 1, 2008, with interest payable each January 1 and July 1. The stated rate of interest is 10%. When the bonds were sold, the effective rate of interest was 12%. The company s financial reporting year ends December 31.

*Required:*

1. Determine the price at which the bonds would be sold.
2. Prepare the amortization schedule using the effective-interest method.
3. Prepare a comparative schedule of interest expense for each year (2003 2008) for the effective-interest and straight-line methods of amortization.
4. Record the journal entry for the last payment using the amortization schedule in (2).
5. Record the journal entry for the retirement of the bonds.
6. **Interpretive Question:** Is the difference between the interest expense each year between the straight-line and effective-interest methods sufficient to require the use of the effective-interest method? How do you think this question would be answered in practice?

## PROBLEM 10-20 EFFECTIVE-INTEREST AMORTIZATION

Lancell Corporation issued $100,000 of three-year, 10% bonds on January 1, 2002. The bonds pay interest on January 1 and July 1 each year. The bonds were sold to yield an 8% return, compounded semiannually.

*Required:*

1. At what price were the bonds issued?
2. Prepare a schedule to amortize the premium or discount on the bonds using the effective-interest amortization method.
3. Use the information in the amortization schedule prepared for (2) to record the interest payment on July 1, 2004, including the appropriate amortization of the premium or discount.
4. **Interpretive Question:** Explain why these bonds sold for more or less than face value.

## PROBLEM 10-21 ACCOUNTING FOR BONDS

Bell Company sold $200,000 of 10-year bonds on January 1, 2002, to Brown Corporation. The bond indenture included the following information:

| | |
|---|---|
| Face value | $200,000 |
| Date of bonds | January 1, 2002 |
| Maturity date | January 1, 2012 |
| Stated rate of interest | 14%* |
| Effective (market) rate of interest | 12%* |

*Compounded semiannually

*Required:*

1. Prepare the journal entry to record the issuance of the bonds.
2. What is the interest expense on the Bell Company books for the years ending December 31, 2002, and December 31, 2003, using straight-line amortization?
3. Explain how the bonds would be presented on Bell s balance sheet at December 31, 2003.

## PROBLEM 10-22 STRAIGHT-LINE VERSUS EFFECTIVE-INTEREST AMORTIZATION

Foster Corporation issued three-year bonds with a $180,000 face value on March 1, 2002, in order to pay for a new computer system. The bonds mature on March 1, 2005, with interest payable on March 1 and September 1. The contract rate of interest is 10%. (Interest is compounded semiannually.) When the bonds were sold, the effective rate of interest was 12%. The company s fiscal year ends on February 28.

*Required:*

1. At what price were the bonds issued based on the information presented?
2. Prepare an amortization schedule using the effective-interest method.
3. Prepare a schedule of interest expense for each year (2002 2005), comparing the annual interest expense for straight-line and effective-interest amortization.
4. Using the amortization schedule prepared in (2), prepare the journal entry to record the interest payment on September 1, 2002.
5. Prepare the adjusting journal entry to record accrued interest on February 28, 2003.
6. Prepare the journal entry to retire the bonds on March 1, 2005, assuming all interest has been paid prior to retirement.

## PROBLEM 10-23 BONDS RETIRED BEFORE MATURITY

Amity Construction Company issued $100,000 of 10% bonds on January 1, 2003. The maturity date of the bonds is January 1, 2013. Interest is payable January 1 and July 1. The bonds were sold at 111.4 on July 1, 2003. The company uses the straight-line method of amortizing bond premiums and discounts.

*Required:*

1. Make the required journal entries for each of the following dates:
   a. July 1, 2003.
   b. December 31, 2003.
   c. January 1, 2004.
   d. July 1, 2004.
2. Because of a substantial decline in the market rate of interest, Amity Construction Company purchased all the bonds on the open market at face value (100) on July 1, 2006. The following entry had just been made on that day:

| | | |
|---|---|---|
| Bond Interest Expense | 4,400 | |
| Premium on Bonds | 600 | |
| Cash | | 5,000 |
| *Made semiannual interest payment on the bonds and amortized bond premium for six months.* | | |

Prepare the journal entry to record the retirement of the bonds on July 1, 2006.

## PROBLEM 10-24 UNIFYING CONCEPTS: ACCOUNTING FOR BONDS PAYABLE

Durham Corporation was authorized to issue $500,000 of 8%, four-year bonds, dated May 1, 2003. All the bonds were sold on that date when the effective interest rate was 10%. Interest is payable on May 1 and November 1 each year. The company follows a policy of amortizing premium or discount using the effective-interest method. The company closes its books on December 31 of each year.

*Required:*

1. Calculate the issuance price of the bonds.
2. Prepare an amortization schedule that covers the life of the bond.
3. Prepare journal entries at the following dates based on the information shown in the amortization schedule prepared for requirement (2).
   a. December 31, 2003.
   b. May 1, 2004.

c. November 1, 2004.
d. December 31, 2004.

4. Based on the journal entries prepared for requirement (3), how much interest expense related to this bond issue did the company report on its income statement for the year 2004?
5. What was the carrying value of this bond issue on the balance sheet of the company at December 31, 2004?
6. **Interpretive Question:** Explain why another company in the same industry, which issued bonds with the same amount of face value, the same date of issuance, and the same stated rate of interest, might have had an issuance price of more or less than the price you computed for the issuance of the Durham Corporation bonds.

## PROBLEM 10-25 ANALYSIS OF BONDS

Bonds with a face value of $200,000 and a stated interest rate of 12% were issued on March 1, 2003. The bonds pay interest each February 28 and August 31 and mature on March 1, 2013. The issuing company uses the calendar year for financial reporting.

*Required:* Using these data, complete the following tables for each of the conditions listed. (Show computations and assume straight-line amortization.)

1. The bonds sold at face value.
2. The bonds sold at 97.
3. The bonds sold at 103.

| | Case 1 | Case 2 | Case 3 |
|---|---|---|---|
| Cash received at issuance date | _____ | _____ | _____ |
| Total cash paid to bondholders through maturity | _____ | _____ | _____ |
| Income Statement for 2003: | | | |
| Bond interest expense | _____ | _____ | _____ |
| Balance Sheet at December 31, 2003: | | | |
| Long-term liabilities: | | | |
| Bonds payable, 12% | _____ | _____ | _____ |
| Unamortized discount | _____ | _____ | _____ |
| Unamortized premium | _____ | _____ | _____ |
| Bond carrying value | _____ | _____ | _____ |
| Approximate effective interest rate* | _____ | _____ | _____ |

*Round to the nearest tenth of a percent.

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

## ANALYZING REAL COMPANY INFORMATION

***Analyzing 10-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** is included in Appendix A. Locate that annual report and consider the following questions:

1. Examine Microsoft s balance sheet as of June 30, 1999. Do you notice anything unusual in connection with Microsoft s reported long-term debt?
2. During fiscal 1997, Microsoft issued $980 million in convertible preferred stock. The terms of this preferred stock are that the investors agreed to give Microsoft $980 million, and Microsoft agreed to pay them a fixed amount of $27 million per year in dividends. Starting in 1999, these preferred stockholders can exchange their shares for Microsoft common stock, which will entitle them to all the rights of Microsoft owners. In what ways is this $980 million investment in Microsoft similar to a loan? In what ways is it different from a loan?

***Analyzing 10-2 (IBM)***

**INTERNATIONAL BUSINESS MACHINES** (**IBM**) included the following information in Note J to its 1999 financial statements:

**Long-Term Debt**
**At December 31, 1999**
**(dollars in millions)**

| | Maturity Dates | Amount |
|---|---|---|
| *Items denominated in U.S. dollars:* | | |
| DEBENTURES: | | |
| 6.22% debentures | 2027 | $ 500 |
| 6½% debentures | 2028 | 700 |
| 7% debentures | 2025 | 600 |
| 7% debentures | 2045 | 150 |
| 7⅛% debentures | 2096 | 850 |
| 7½% debentures | 2013 | 550 |
| 8⅜% debentures | 2019 | 750 |

*(continued)*

| NOTES: | | |
|---|---|---|
| 6.3% average | 2000 2014 | $ 4,191 |
| Medium-term note | | |
| Program: 5.8% average | 2000 2014 | 6,230 |
| Other: 6.5% average | 2000 2012 | 1,227 |
| | | $15,748 |
| *Items denominated in other currencies:* | | |
| Japanese yen (3.0% average rate) | 2000 through 2014 | $ 3,141 |
| Canadian dollars (5.7% average rate) | 2000 through 2005 | 707 |
| German marks (4.9% average rate) | 2002 | 103 |
| Swiss francs (2.5% average rate) | 2001 | 78 |
| U.K. pounds (7.0% average rate) | 2000 through 2003 | 33 |
| Other currencies (13.6% average rate) | 2000 through 2014 | 159 |
| | | $19,969 |

1. IBM lists seven different issues of debentures. What is a debenture?
2. What is unusual about the 7⅛% debentures?
3. IBM has borrowed the equivalent of $4.221 billion in the form of foreign currency loans. Why would IBM get loans denominated in foreign currencies rather than get all of its loans in U.S. dollars?
4. The average interest rates on the foreign currency loans range from a low of 2.5% for loans of Swiss francs to 7.0% for loans of U.K. pounds. What factors would cause IBM to pay a higher interest rate when it borrows U.K. pounds than when it borrows Swiss francs?

***Analyzing 10-3 (Citicorp)***

The **CITY BANK OF NEW YORK** was chartered on June 16, 1812, just two days before the start of the War of 1812 between the United States and Great Britain. To get around twentieth-century bank holding laws, a holding company was organized to own the bank. This holding company took the name of **CITICORP** in 1974, and the bank itself is now called **CITIBANK**. Citibank is one of the largest banks in the United States.

Below are a simplified balance sheet for Citicorp as of December 31, 1999, and a schedule outlining the interest rate on Citicorp s outstanding long-term debt:

**Citicorp**
**Balance Sheet**
**December 31, 1999**

| | **(millions of dollars)** |
|---|---|
| Cash | $ 10,648 |
| Investment securities | 90,310 |
| Loans receivable | 203,288 |
| Other assets | 23,653 |
| Total | $327,899 |
| Deposit liabilities | $234,832 |
| Other liabilities | 59,753 |
| Long-term debt | 11,752 |
| Stockholders equity | 21,562 |
| Total | $327,899 |

| Interest Rates Prevailing on Parent and Subsidiary Loans for Loans Outstanding on December 31, 1999 | |
|---|---|
| **Type of Loan** | **Average Interest Rate** |
| PARENT COMPANY | |
| Senior notes | 05.94% |
| Subordinated notes | 07.07% |
| SUBSIDIARIES | |
| Senior notes | 08.22% |
| Subordinated notes | 07.78% |

1. Citicorp s simplified balance sheet is representative of most banks balance sheets. Using the information about relative sizes of assets and liabilities given in that balance sheet, write a brief description of the primary operating activity of a bank.
2. Compute Citicorp s debt ratio (total liabilities divided by total assets). Comment on whether the value seems high or low to you.
3. In its long-term debt of $11.752 billion, Citicorp has both fixed-rate loans and floating-rate (or variable-rate) loans. What is the advantage of borrowing with a fixed-rate loan? What is the advantage of borrowing with a variable-rate loan?
4. Citicorp includes the following information in its 1999 financial statement note on long-term debt: Approximately 59% . . . of subsidiary long-term debt was guaranteed by Citicorp, and of the debt not guaranteed by Citicorp, approximately 23% . . . was secured by the assets of the subsidiary. When Citicorp guarantees the long-term debt of one of its subsidiaries, does that raise or lower the interest rate that the subsidiary must pay on the debt? Explain. Is the interest rate on a loan higher when it is secured by assets or when it is unsecured? Explain.

## INTERNATIONAL CASE

***British Petroleum***

In May 1901, William Knox D Arcy convinced the Shah of Persia (present-day Iran) to allow him to hunt for oil. The oil discovered in Persia in 1908 was the first commercially significant amount of oil found in the Middle East. The company making the discovery called itself the **ANGLO-PERSIAN OIL COMPANY**, later named **BRITISH PETROLEUM**, or BP. Today, BP Amoco is one of the largest oil and gas exploration and refining companies in the world.

The information on the next page comes from Note 23 (Finance debt) of British Petroleum s 1999 financial statements. All amounts are in millions of British pounds.

| | Loans | Finance Leases |
|---|---|---|
| Payments due within: | | |
| 1 year | £ 4,812 | £ 103 |
| 2 to 5 years | 4,646 | 725 |
| after 5 years | 3,261 | 3,569 |
| | £12,719 | £4,397 |
| Less finance charge | 0 | 2,572 |
| Net obligation | £12,719 | £1,825 |

1. In Great Britain, a finance lease is what we in the United States would call a capital lease. According to Note 23, British Petroleum expects to make total lease payments of £4.397 billion under finance leases. However, a liability of only £1.825 billion is reported on the balance sheet. Why is there a difference between the two amounts?
2. The £4.397 billion payment amount for the finance leases reflects the total of all lease payments that will be made under the agreements. Does the £12.719 billion amount reported for loans reflect the amount of all payments that will be made under the loan agreements? Explain.
3. The future loan and finance lease payments are separated into amounts to be repaid within one year, within two to five years, and after five years. How would a financial statement user find this payment timing information to be useful?

## ETHICS CASE

***Hiding an Obligation By Calling It a Lease***

You and your partner own Miss Karma s Preschool, which provides preschool and day care services for about 100 children per day. Business is booming, and you are right in the middle of expanding your operation. Three months ago you took your financial statements to the local bank and applied for a five-year, $145,000 loan. The bank approved the loan, but it included as part of the loan agreement a condition that you would incur no other long-term liabilities during the five-year loan period. You cheerfully agreed to this condition because you didn t anticipate any further financing needs.

Two weeks ago a state government inspector came to your facility and said that your square footage was not enough for the number of children enrolled in your programs. The inspector gave you one month to find another facility, or else you would have to shut down. Luckily, you were able to find another building to use. However, the owner of the building insists on having you sign a 20-year lease. Alternatively, you can buy the building for $220,000. To buy the building, you would have to get a mortgage, which would, of course, violate the agreement on your five-year bank loan.

Your partner suggests that the lease is the way to solve all of your problems. Your partner has studied some accounting and reports that you can sign the lease but carefully construct the lease contract so that the lease will be accounted for as an operating lease. In this way, the lease obligation will not be reported as an accounting liability, the loan agreement will not be violated, and you can move to the new facility without any problem.

Is your partner right? Is it possible to avoid reporting the 20-year lease contract as an accounting liability? By signing the lease, are you violating the bank loan agreement? What do you think is the best course of action?

## WRITING ASSIGNMENT

***My Contract s Bigger Than Your Contract!***

You are an agent for professional athletes. One of your clients is a superstar in the NBA. Last month you negotiated a new deal for your client that pays him $22 million per year for each of the next six years. Your client was very pleased with this $132 million contract, especially because it was a bigger contract than any of the other players on his team received.

This morning, while you were relaxing in your Jacuzzi, you got an angry cellular call from your client. It seems that one of his teammates just signed a $150 million deal, paying him $15 million per year for each of the next 10 years. Your client is outraged because you guaranteed that no one on his team would be receiving a bigger contract this season. Your client has threatened to terminate his agreement with you and also to spread the word among all his friends that you are not trustworthy.

Write a one-page memo to your client explaining that the actual value of his $132 million contract is greater than the $150 million contract signed by his teammate. Your client has a marketing degree from an ACC school, so he has had some exposure to the concept of the time value of money.

## THE DEBATE

***Which is the Better Way to Borrow Bank Loan or Bonds?***

When a major corporation is seeking to borrow a large sum of money, it can choose to arrange a loan through a single bank (or group of banks), or it can issue bonds and essentially borrow the money from the public.

Divide your group into two teams.

One team represents Bank Loans. Prepare a two-minute oral presentation arguing that the best way for a major corporation to borrow money is through bank loans negotiated directly with a single bank or group of banks. The other team represents Bonds. Prepare a two-minute oral presentation arguing that bonds offer the best way for a major corporation to borrow a large sum of money.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignments given in earlier chapters. If you completed those spreadsheets, you have a head start on this one.

1. Handyman wishes to prepare a forecasted balance sheet and income statement for 2004. Use the original financial statement numbers for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2] as the basis for the forecast, along with the following additional information:
   a. Sales in 2004 are expected to increase by 40% over 2003 sales of $700.
   b. Cash will increase at the same rate as sales.
   c. The forecasted amount of accounts receivable in 2004 is determined using the forecasted value for the average collection period. For simplicity, do the computations using the end-of-period accounts receiv-

able balance instead of the average balance. The average collection period for 2004 is expected to be 14.08 days.

d. The forecasted amount of inventory in 2004 is determined using the forecasted value for the number of days sales in inventory (computed using the end-of-period inventory balance). The number of days sales in inventory for 2004 is expected to be 107.6 days.
e. The forecasted amount of accounts payable in 2004 is determined using the forecasted value for the number of days purchases in accounts payable (computed using the end-of-period accounts payable balance). The number of days purchases in accounts payable for 2004 is expected to be 48.34 days.
f. The $160 in operating expenses reported in 2003 breaks down as follows: $5 depreciation expense, $155 other operating expenses.
g. See item (l) for the assumption concerning the amount of new long-term debt that will be acquired in 2004.
h. No cash dividends will be paid in 2004.
i. New short-term loans payable will be acquired in an amount sufficient to make Handyman s current ratio in 2004 exactly equal to 2.0.
j. The forecasted amount of property, plant, and equipment (PP&E) in 2004 is determined using the forecasted value for the fixed asset turnover ratio. For simplicity, compute the fixed asset turnover ratio using the end-of-period *gross PP&E* balance. The fixed asset turnover ratio for 2004 is expected to be 3.518 times.
k. In computing depreciation expense for 2004, use straight-line depreciation and assume a 30-year useful life with no residual value. Gross PP&E acquired during the year is depreciated for only half the year. In other words, depreciation expense for 2004 is the sum of two parts: (1) a full year of depreciation on the beginning balance in PP&E, assuming a 30-year life and no residual value and (2) a half-year of depreciation on any new PP&E acquired during the year, based on the change in the gross PP&E balance.

Note: These statements were constructed as part of the spreadsheet assignment in Chapter 9; you can use that spreadsheet as a starting point if you have completed that assignment. *Clearly state any additional assumptions that you make.*

For this exercise, add the following additional assumptions:

l. New long-term debt will be acquired (or repaid) in an amount sufficient to make Handyman s debt ratio (total liabilities divided by total assets) in 2004 exactly equal to 0.80.
m. Assume an interest rate on short-term loans payable of *6.0%* and on long-term debt of *8.0%*. Only a half year s interest is charged on loans taken out during the year. For example, if short-term loans payable at the end of 2004 are $15 and given that short-term loans payable at the end of 2003 were $10, total short-term interest expense for 2004 would be $0.75 [($10 $\times$ 0.06) + ($5 $\times$ 0.06 $\times$ $^1/_2$)].

*Clearly state any additional assumptions that you make.*

2. Repeat (1), with the following changes in assumptions:
   a. The debt ratio in 2004 is exactly equal to 0.70.
   b. The debt ratio in 2004 is exactly equal to 0.90.

3. Prepare a table displaying the forecasted values of long-term debt and paid-in capital in 2004 under each of the following assumptions about the debt ratio: 0.70, 0.80, and 0.90. The sum of these two items can be viewed as the total amount of long-term financing (both debt and equity) received from outsiders. Comment on why the total of these two items is not the same under each debt ratio assumption.

## INTERNET SEARCH

***Disney***

The history of **DISNEY** was outlined at the beginning of the chapter. Access Disney s Web site at **http://www.disney.com**. Sometimes Web addresses change, so if this Disney address doesn t work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link to Disney.

Once you ve gained access to Disney s Web site, answer the following questions:

1. Disney s home page offers a link to a site promoting Disney s current movies. What movie is currently featured at that site?
2. Use Disney s link to its international operations in France to see if you can find the Web site for Disneyland Paris. What is the Web address? Is the site in English or in French?
3. If you wish to enroll in Disney s direct stock purchase plan, meaning that you will buy ownership shares from Disney itself rather than going through a stockbroker, what is the minimum amount you must invest?
4. According to Disney s most recent statement of cash flows, how much new borrowing did Disney do in the most recent year? How much was spent to repay loans in the most recent year?

# Equity Financing

chapter

11

## learning objectives

After studying this chapter, you should be able to:

1. Distinguish between debt and equity financing, and describe the advantages and disadvantages of organizing a business as a proprietorship or a partnership.
2. Describe the basic characteristics of a corporation and the nature of common and preferred stock.
3. Account for the issuance and repurchase of common and preferred stock.
4. Understand the factors that affect retained earnings, describe the factors determining whether a company can and should pay cash dividends, and account for cash dividends.
5. Describe the purpose of reporting comprehensive income in the equity section of the balance sheet, and prepare a statement of stockholders equity.

expanded material

6. Account for stock dividends and distinguish them from stock splits.
7. Explain prior-period adjustments and prepare a statement of retained earnings.
8. Understand basic proprietorship and partnership accounting.

In 1882, two young newspaper reporters, Charles Dow and Edward Jones, teamed up to provide the Wall Street financial community with handwritten news bulletins. In 1889, when the staff of **DOW JONES & COMPANY** had grown to 50, they decided to convert the bulletin service into a daily newspaper. The first issue of *The Wall Street Journal* appeared on July 8, 1889. Clarence Barron, who operated a financial news service in Boston, was the paper s first out-of-town reporter. Barron purchased Dow Jones & Company in 1902 for $130,000, and his heirs still hold majority control of the company today.

In the 1940s, *The Wall Street Journal* began publishing more than just business news, expanding its coverage to include economics, politics, and general news. Today, *The Wall Street Journal* has a paid circulation of 1.8 million and is read by an estimated 4.9 million people every day. Dow Jones also publishes *The Wall Street Journal Europe* and *The Asian Wall Street Journal*, and each day it contributes special business pages to 23 Spanish and Portuguese language newspapers in Latin American countries. *The Wall Street Journal* is also a leader in Web-based news, with more than 500,000 paid subscribers for **http://wsj.com** as of September 30, 2000. This is particularly impressive in that the public is accustomed to getting information for free on the Web.

*The Wall Street Journal* is the flagship of the company, but the name Dow Jones is best known because of the Dow Jones Industrial Average that is cited in the news every day. The Dow is widely used to reflect the general health of the U.S. economy. So, what is it? Simply put, the Dow Jones Industrial Average measures the average movement of the stock prices of selected U.S. companies. The very first value of the average was 40.94 on May 26, 1896. Charles Dow computed this value by adding the share prices of 12 important companies chosen by him (**GENERAL ELECTRIC** was one of them) and then dividing by 12. Thus, the average price per share for these 12 companies was $40.94. Since 1928, the average has included 30 companies selected by the editors of *The Wall Street Journal.* The average is no longer computed by simply averaging share prices, but the underlying concept remains the same. Changes in the companies included in the average are rare. Nevertheless, since 1990, 11 companies have been replaced to reflect the decreasing importance of manufacturing in the U.S. economy. For example, **BETHLEHEM STEEL**, which had been in The Dow since 1928, was replaced in March 1997 by **WAL-MART**. In 1999, the first two NASDAQ companies were added to The Dow **MICROSOFT** and **INTEL**. The 30 companies included in the average as of October 16, 2000, are listed in Exhibit 11-1. The 30 companies in the average are listed every day in *The Wall Street Journal*, often on page C3.[1]

setting the stage

***DOW JONES & COMPANY*** *is an appropriate symbol of capitalism a corporation that has done business in and around the spiritual heart of capitalistic finance, the New York Stock Exchange, for over one hundred years. With the disintegration of the former Soviet Union and the rapid conversion of China into a socialist market economy, it seems that the economic battle of capitalism and communism has been won by capitalism. As the history of many of the companies profiled in earlier chapters (****MICROSOFT****,* ***SEARS****,* ***YAHOO!****,* ***GENERAL ELECTRIC****) illustrates, the true story of capitalism is not the story of rich capitalists exploiting the masses, but rather the story of unknown individuals using a free market to find outside investor financing that will turn their ideas into reality. Accounting for investor financing is the topic of this chapter.*

*This is the second chapter on financing activities. In the previous chapter, financing through borrowing (debt) was discussed. Another way organizations raise money to finance operations is from investments by owners. In corporations, those investments take the form of stock purchases. In proprietorships and partnerships, they take the form of capital investments in the business. Exhibit 11-2 shows the financial statement items that will be covered in this chapter.*

1 This description is based on information obtained from Dow Jones & Company History at **http://dowjones.com**; Dow Jones & Company, *International Directory of Company Histories*, vol. 19 (Detroit: St. James Press, 1998), pp. 128 131.

**exhibit 11-1** The 30 Firms Included in the Dow Jones Industrial Average (as of October 16, 2000)

| | | |
|---|---|---|
| Aluminum Co. of America | General Electric Co. | McDonald's Corp. |
| American Express Co. | General Motors Corp. | Merck & Co. |
| AT&T Corp. | Hewlett-Packard Co. | Microsoft |
| Boeing Co. | Home Depot | Minnesota Mining & Manufacturing Co. |
| Caterpillar, Inc. | Honeywell | Philip Morris Cos. |
| Citigroup, Inc. | Intel | Procter & Gamble Co. |
| Coca-Cola Co. | International Business Machines Corp. | SBC Communications |
| DuPont Co. | International Paper Co. | United Technologies Corp. |
| Eastman Kodak Co. | J. P. Morgan & Co. | Wal-Mart Stores, Inc. |
| ExxonMobil Corp. | Johnson & Johnson | Walt Disney Co. |

**exhibit 11-2** Financial Statement Items Covered in This Chapter

**Balance Sheet**

**Stockholders' equity**
- Contributed capital
- Retained earnings
- Treasury stock

**Statement of Cash Flows**

**Financing activities**
- Sale of stock
- Purchase of treasury stock
- Payments of dividends

*Certain basic characteristics are common to all investor financing, no matter what the form of business. The first is that owner investments affect the equity accounts of the business. Second, together with the liabilities, these owners equity accounts show the sources of the cash that was used to buy the assets. There are three primary ways to bring money into a business: borrowing (debt financing), selling owners interests (equity financing), and earning profits (also reflected in the equity accounts through the retained earnings account).*

*In the first part of this chapter, we illustrate the accounting for equity financing in the context of corporations. In the expanded material section of the chapter, we show how equity financing is accounted for in proprietorships and partnerships.*

**1**

Distinguish between debt and equity financing, and describe the advantages and disadvantages of organizing a business as a proprietorship or a partnership.

## RAISING EQUITY FINANCING

Most business owners do not have enough excess personal cash to establish and expand their companies. Therefore, they eventually need to look for money from outsiders, either in the form of loans or as funds contributed by investors. The business issues associated with investor financing are summarized in the time line in Exhibit 11-3.

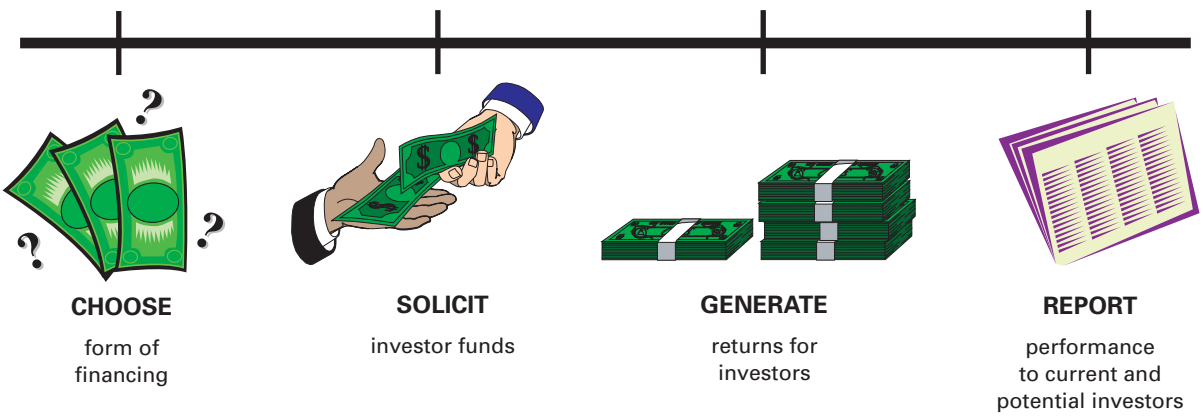
The factors affecting the choice between borrowing and seeking additional investment funds are described in this section of the chapter. This section also outlines the advantages and disadvantages of organizing a business as a proprietorship or a partnership. The decision to incorporate and the process that a corporation follows in soliciting investor funds are described in the next section. The bulk of the chapter is devoted to the accounting procedures used to give a proper reporting of stockholders equity to the investors. Of course, proper financial reporting to current and potential investors is one of the primary reasons for the existence of financial accounting.

### Difference between a Loan and an Investment

Imagine that you own a small business and need $40,000 for expansion. What is the difference between borrowing the $40,000 and finding a partner who will invest the $40,000? If you borrow the money, you must guarantee to repay the $40,000 with interest. If you fail to make these payments, the lender can haul you into court and use the power of the law to force repayment. On the other hand, if your company does very well and you generate more than enough cash to repay the $40,000 plus interest, the lender does not get to share in your success. You owe the lender $40,000 plus interest and not a penny more. So, a loan is characterized by a fixed, legal obligation to repay a specified amount, whether the borrowing company performs poorly or performs well.

If you receive $40,000 in investment funds from a new partner, the partner now shares in your company s failures and successes. If business is bad and the investor is never able to recover

**exhibit 11-3** Time Line of Business Issues Involved with Investor Financing



**f y i**

The law does not help investors recover lost investment funds unless the investors can show that they were tricked (by false financial reports, for example) into making the investment.

his or her $40,000 investment well, that s the way it goes. The law will not help the investor recover the investment because the very nature of an investment is that the investor accepts the risk of losing everything. However, in exchange for accepting this risk, the investor also gets to share in the success if the company does well. For example, if you had loaned $40,000 to Bill Gates for **MICROSOFT** s expansion back in 1986, you would have been repaid the $40,000 plus a little interest. If you had invested that same $40,000 in Microsoft, however, your investment would have grown in value to $14.4 million by October 2000. Thus, an investment is characterized by a higher risk of losing your money, balanced by the chance of sharing in the wealth if the company does well.

## Proprietorships and Partnerships

As explained in Chapter 2, a business can be organized as a proprietorship, a partnership, or a corporation. These three types of organization are merely different types of legal contracts that define the rights and responsibilities of the owner or owners of the business. The advantages and disadvantages of proprietorships and partnerships are discussed below. Corporations are discussed in the next section.

**proprietorship** A business owned by one person.

**partnership** An association of two or more individuals or organizations to carry on economic activity.

A **proprietorship** is a business owned by one person. A **partnership** is a business owned by two or more persons or entities. In most respects, proprietorships and partnerships are similar to each other but very different from corporations. Both a proprietorship and a partnership are characterized by ease of formation, limited life, and unlimited liability.

**EASE OF FORMATION** Proprietorships and partnerships can be formed with few legal formalities. When a person decides to establish a proprietorship, he or she merely acquires the necessary cash, inventory, equipment, and other assets; obtains a business license; and begins providing goods or services to customers. The same is true for a partnership, except that because two or more persons are involved, they must decide together which assets will be acquired and how business will be conducted.

**LIMITED LIFE** Because proprietorships and partnerships are not legal entities that are separate and distinct from their owners, they are easily terminated. In the case of a proprietorship, the owner can decide to dissolve the business at any time. For a partnership, anything that terminates or changes the contract between the partners legally dissolves the partnership. Among the events that dissolve a partnership are

1. the death or withdrawal of a partner,
2. the bankruptcy of a partner,
3. the admission of a new partner,
4. the retirement of a partner, or
5. the completion of the project for which the partnership was formed.

The occurrence of any of these events does not necessarily mean that a partnership must cease business; rather, the existing partnership is legally terminated, and another partnership must be formed.

**UNLIMITED LIABILITY** Proprietorships and partnerships have unlimited liability, which means that the proprietor or partners are personally responsible for all debts of the business. If a partnership is in poor financial condition, creditors first attempt to satisfy their claims from the assets of the partnership. After those assets are exhausted, creditors may seek payment from the personal assets of the partners. In addition, because partners are responsible for one another s actions (within the scope of the partnership), creditors may seek payment for liabilities created by a departed or bankrupt partner from the personal assets of the remaining partners. This unlimited liability feature is probably the single most significant disadvantage of a proprietorship or partnership. It can deter a wealthy person from joining a partnership for fear of losing personal assets.

## to summarize

A loan is a fixed, legal obligation to repay a specified amount, whether the borrowing company performs poorly or performs well. With an investment, the investor risks losing the investment funds if the company performs poorly but shares in the wealth if the company does well. A proprietorship is a business owned by one person. A partnership is a business owned by two or more persons. Both types of businesses are easy to start and easy to terminate. A major disadvantage of proprietorships and partnerships is the unlimited liability of the owner or partners.

**2**

Describe the basic characteristics of a corporation and the nature of common and preferred stock.

**corporation** A legal entity chartered by a state; ownership is represented by transferable shares of stock.

## CORPORATIONS AND CORPORATE STOCK

Corporations are the dominant form of business enterprise in the United States. Established as separate legal entities, **corporations** are legally distinct from the persons responsible for their creation. In many respects, they are accorded the same rights as individuals; they can conduct business, be sued, enter into contracts, and own property. Firms are incorporated by the state in which they are organized and are subject to that state s laws and requirements.

### Characteristics of a Corporation

Corporations have several characteristics that distinguish them from proprietorships and partnerships. These characteristics are discussed below.

**limited liability** The legal protection given stockholders whereby they are responsible for the debts and obligations of a corporation only to the extent of their capital contributions.

**LIMITED LIABILITY** **Limited liability** means that in the event of corporate bankruptcy, the maximum financial loss any stockholder can sustain is his or her investment in the corporation (unless fraud can be proved). Because a corporation is a separate legal entity and is responsible for its own acts and obligations, creditors usually cannot look beyond the corporation s assets for satisfaction of their claims. This limited liability feature is probably the main reason for the

Corporations are the dominant form of business in the United States. As a corporation, MICROSOFT is a legal entity, and its ownership is represented by transferable shares of stock.

## business environment essay

**Going Public with a Dot.com Company**

It used to be that initial public offerings (IPOs) created millionaires overnight. Now, with the high values of many high-tech start-up companies, IPOs are creating billionaires overnight. For example, **CORVIS**, a provider of all-optical network switching equipment, went public on July 28, 2000. As of that date, Corvis had not yet reported any revenue in its history. Nevertheless, favorable expectations about the company s future potential caused the shares to trade for $84 per share at the end of the first day of trading, making the company worth over $20 billion on paper. As of the end of the IPO day, founder David Huber was personally worth $10 billion.

The eight steps involved in going public are outlined below by reference to the IPO of **THEGLOBE.COM**, a company that facilitates many online clubs and thus serves as an Internet portal for members of those clubs.

1. *Issuer conducts bake-off to select underwriter.* In September 1998, theglobe.com chose **BEAR STEARNS** to be the underwriter for its IPO. An underwriter guides the company through the IPO process.
2. *Underwriter benchmarks issuer s financial statements with competitors.* Bear Stearns analyzed theglobe.com s financial statements to determine how the company should be valued in light of the stock prices of other, similar companies that had already gone public.
3. *Underwriter sets the preliminary IPO price per share.* Based on its analysis of theglobe.com s financial statements, Bear Stearns determined that theglobe.com s shares should be issued at a price between $11 and $13 per share.
4. *Issuer and underwriter hold a roadshow to promote the IPO to large investors.* Bear Stearns and executives from theglobe.com gave a series of presentations to large investors to convince them to invest in the IPO shares of theglobe.com.

**fyi**

There are some hybrid organizations that have characteristics of both partnerships and corporations. For example, several of the large international accounting firms are organized as limited liability partnerships (LLPs). An LLP offers the advantages of a partnership structure but also provides each partner with limited liability for the costs of lawsuits caused by the actions of his or her partners.

**fyi**

An LLC (limited liability company) offers the limited liability legal protection of a corporation as well as the favorable partnership treatment for income tax purposes.

phenomenal growth of the corporate form of business because it protects investors from sustaining losses beyond their investments. In most cases of bankruptcy, however, stockholders will lose most of their investment because the claims of creditors must be satisfied before stockholders receive anything.

**EASY TRANSFERABILITY OF OWNERSHIP** Shares of stock in a corporation can be bought, sold, passed from one generation to another, or otherwise transferred without affecting the legal or economic status of the corporation. In other words, most corporations have perpetual existence the life of the corporation continues by the transfer of shares of stock to new owners.

**ABILITY TO RAISE LARGE AMOUNTS OF CAPITAL** Raising large amounts of capital can be easier for a corporation than for a proprietorship or a partnership because a corporation can sell shares of its stock. The sale of shares of stock permits many investors, both large and small, to participate in ownership of the business. Some corporations actually have thousands of individual stockholders. In its 1999 annual report, **DOW JONES & COMPANY** reports that it has 15,508 stockholders of record. Because of this widespread ownership, large corporations are said to be publicly owned.

**DOUBLE TAXATION** Because corporations are separate legal entities, they are taxed independently of their owners. This often results in a disadvantage, however, because the portion of corporate profits that is paid out in dividends is taxed twice. First, the profits are taxed to the corporation; second, the owners, or stockholders, are taxed on their dividend income.

**CLOSE GOVERNMENT REGULATION** Because large corporations may have thousands of stockholders, each with only a small ownership interest, the government has assumed the task of monitoring certain corporate activities. For example, the government

5. *Underwriter builds a book of tentative orders to see how much interest there is in the IPO.* In October 1998, a downturn in the market caused some hesitancy among potential investors in theglobe.com s IPO. The price range was lowered to $8 to $10 per share, and Bear Stearns people called large investors to determine their interest.
6. *Final IPO price is set.* The day before the IPO, Bear Stearns set the final IPO price at $9 per share. This is the amount (less the Bear Stearns commission) that the founders of theglobe.com would receive for the shares that they intended to sell as part of the IPO.
7. *IPO shares are issued.* On November 13, 1998, theglobe.com s shares were issued.
8. *Trading begins.* As frequently happens with IPO shares, the price per share skyrocketed during the first day of trading. During the day on November 13, 1998, shares of theglobe.com stock traded for as high as $97 per share, a 928 percent increase over the IPO price of $9. This huge first-day price increase indicates that the founders of theglobe.com could have sold their shares for more. However, the publicity benefit of having all of Wall Street clamor to buy shares of theglobe.com stock may more than make up for this cost.

Frequently, the initial euphoria surrounding an IPO quickly dissipates and the share price sinks accordingly. For every **MICROSOFT**, where a share purchased in the IPO for $21 in 1986 was worth $7,560 in October 2000, there are dozens of less successful IPOs, such as theglobe.com. As of October 17, 2000, shares of theglobe.com stock that had traded as high as $97 per share on the IPO date were trading for just $1 per share.

**Source:** The IPO Machine: From Start to Finish, *The Wall Street Journal,* April 14, 1999, p. C1.

requires that all major corporations be audited and that they issue periodic financial statements. As a result, in certain respects, major corporations often enjoy less freedom than do partnerships and proprietorships.

## Starting a Corporation

Suppose that you want to start a corporation. First, you should study your state s corporate laws (usually with the aid of an attorney). Then you must apply to the appropriate state official for a charter. Your application will include the intended name of your corporation, its purpose (that is, the type of activity it will engage in), the type and amount of stock you plan to have authorized for your corporation, and, in some cases, the names and addresses of the potential stockholders. Finally, if the state approves your application, you will be issued a charter (also called articles of incorporation ), giving legal status to your corporation.

**prospectus** A report provided to potential investors that represents a company s financial statements and explains its business plan, sources of financing, and significant risks.

**stockholders** Individuals or organizations that own a portion (shares of stock) of a corporation.

**board of directors** Individuals elected by the stockholders to govern a corporation.

Of course, the primary purpose of forming a corporation is to then sell stock in the corporation in order to obtain business financing. If the business you intend to establish will operate across state lines and if you intend to seek investment funds from the general public, then you must register your intended stock issue with the Securities and Exchange Commission in Washington, D.C. You are required to provide a **prospectus** to each potential investor; the prospectus outlines your business plan, sources of financing, significant risks, and the like. Finally, you can sell your shares to the public in what is called an initial public offering (IPO). You will receive the proceeds from the IPO, minus the commission charged by the investment banker sponsoring the issue.

When an investor buys stock in a corporation, he or she receives a stock certificate as evidence of ownership. For convenience, these stock certificates are frequently held by the stockbroker through whom the investor purchased the shares. The investors in a corporation are called **stockholders**, and they govern the corporation through an elected **board of directors**. In most corporations, the board of directors then chooses a management team to direct the daily affairs

business environment essay

**Investing in the Stock Market** October, said Mark Twain, is one of the peculiarly dangerous months to speculate in stocks. Others are July, January, September, April, November, May, March, June, December, August, and February. Despite Mark Twain s warning, stocks have always been one of the most prestigious and desired investments. These days, stock trading is easier than ever. There are scores of Internet stock trading firms that will allow you to buy and sell as many shares as you wish for less than $10 per trade. For some people, Internet stock trading has become the ultimate video game, with shooting lasers and fighting ninjas being replaced by stock price charts and the Federal Reserve Board.

This textbook won t make you an expert in picking promising stocks. In fact, you should be suspicious of any book or investment adviser claiming to have the secrets to deciphering the stock market. Here are some practical guidelines to help you avoid some of the pitfalls when deciding to buy stock:

of the corporation. In smaller companies, the board of directors is usually made up of members of that management team.

Several types of stock can be authorized by the charter and issued by the corporation. The most familiar types are common stock and preferred stock, and the major difference between them concerns the degree to which their holders are allowed to participate in the rights of ownership of the corporation.

## Common Stock

**common stock** The most frequently issued class of stock; usually, it provides a voting right but is secondary to preferred stock in dividend and liquidation rights.

Certain basic rights are inherent in the ownership of **common stock**. These rights are as follows:

1. The right to vote in corporate matters such as the election of the board of directors or the undertaking of major actions such as the purchase of another company.
2. The preemptive right, which permits existing stockholders to purchase additional shares whenever stock is issued by the corporation. This allows common stockholders to maintain the same percentage of ownership in the company if they choose to do so.
3. The right to receive cash dividends if they are paid. As explained later, corporations do not have to pay cash dividends, and the amount received by common stockholders is sometimes limited.
4. The right to ownership of all corporate assets once obligations to everyone else have been satisfied. This means that once all loans have been repaid and the claims of the preferred stockholders have been met (as discussed below), all the excess assets belong to the common stockholders.

**fyi**

Occasionally, a corporation will have more than one class of common stock. For example, Dow Jones & Company has common stock and Class B common stock. Each Class B share gets 10 votes in corporate matters, and most of the Class B shares are owned by the descendants of Clarence Barron.

In essence, the common stockholders of a corporation are the true owners of the business. They delegate their decision-making authority to the board of directors, who in turn delegate authority for day-to-day operations to managers hired for that purpose. Thus, a distinguishing characteristic of business ownership as a common stockholder of a corporation is a clear separation between owning the business and operating the business.

## Preferred Stock

**preferred stock** A class of stock that usually provides dividend and liquidation preferences over common stock.

The term preferred stock is somewhat misleading because it gives the impression that **preferred stock** is better than common stock. Preferred stock isn t better; it s different. A good way to think of preferred stock is that preferred stockholders give up some of the ownership rights of the common stockholders in exchange for some of the protection enjoyed by lenders.

In most cases, preferred stockholders are not allowed to vote for the corporate board of directors. In addition, preferred stockholders are usually allowed to receive only a fixed cash dividend, meaning that if the company does well, preferred stockholders do not get to share in the

1. Do not make hasty, emotional decisions about buying and selling stocks.
2. Do not fall in love with stocks so that you are no longer objective in appraising them.
3. Remember, you will seldom, if ever, buy stocks at their lowest price and sell them at their highest price.
4. There are stock market fads, so when you buy at the height of a stock s popularity, you almost always pay too much.
5. Don t invest in stocks unless you can afford to lose the money you invest or at least have no access to it for a long time.
6. Plan to hold your stock investments for a long time. Most stock market millionaires were not speculators, and commissions on frequent sales and purchases will eat up your short-term gains.

**Source:** W. S. Albrecht, *Money Wise* (Salt Lake City, Utah: Deseret Book Company, 1983), pp. 134 139.

success. In exchange for these limitations, in the event that the corporation is liquidated, preferred stockholders are entitled to receive their cash dividends and have their claims fully paid before any cash is paid to common stockholders.

**convertible preferred stock**
Preferred stock that can be converted to common stock at a specified conversion rate.

Preferred stock may also include other types of privileges, the most common of which is convertibility. **Convertible preferred stock** is preferred stock that can be converted to common stock at a specified conversion rate. For example, the notes to **MICROSOFT** s 1999 financial statements (see Appendix A) reveal that the investors who purchased 12.5 million shares of Microsoft convertible preferred stock in December 1996 were able to exchange those preferred shares (if they wish) for Microsoft common stock beginning in December 1999. Convertible preferred stock can be very appealing to investors. They can enjoy the dividend privileges of the preferred stock while having the option to convert to common stock if the market value of the common stock increases significantly. By issuing shares of stock with varying rights and privileges, companies can appeal to a wider range of investors.

## to summarize

A corporation is a business entity that has a legal existence separate from that of its owners; it can conduct business, own property, and enter into contracts. The five major features of a corporation are (1) limited liability for stockholders, (2) easy transferability of ownership, (3) the ability to raise large amounts of capital, (4) separate taxation, and (5) for large corporations, closer regulation by government. Common stock confers four basic rights upon its owners: (1) the right to vote in corporate matters, (2) the right to maintain proportionate ownership, (3) the right to receive cash dividends, and (4) the ownership of all excess corporate assets upon liquidation of the corporation. Preferred stock typically carries preferential claims to dividend and liquidation privileges but has no voting rights.

## 3 ACCOUNTING FOR STOCK

Account for the issuance and repurchase of common and preferred stock.

In this section we focus on the accounting for the issuance of stock as well as the accounting for stock repurchases.

## Issuance of Stock

**par value** A nominal value assigned to and printed on the face of each share of a corporation s stock.

Each share of common stock usually has a **par value** printed on the face of the stock certificate. For example, the common stock of **DOW JONES & COMPANY** has a $1 par value. This par value has little to do with the market value of the shares. In October 2000, each Dow Jones common share with a $1 par value was selling for about $55 per share. When par-value stock sells for a price above par, it is said to sell at a premium. In most states it is illegal to issue stock for a price below par value. If stock were issued at a discount (below par), stockholders could later be held liable to make up the difference between their investment and the par value of the shares they purchased. The par value multiplied by the total number of shares outstanding is usually equal to a company s legal capital, and it represents the amount of the invested funds that cannot be returned to the investors as long as the corporation is in existence. This legal capital requirement was originally intended to protect a company s creditors; without it, excessive dividends could be paid, leaving nothing for creditors. The par value really was of more importance a hundred years ago and is something of a historical oddity today. These days, most states allow the sale of no-par stock.

**f y i**

Most companies establish a very low par value, such as $0.10 or $1.00 per share. In fact, in 1998, 40% of the publicly traded companies in the United States had par values of exactly $0.01.

When par-value stock is issued by a corporation, usually Cash is debited, and the appropriate stockholders equity accounts are credited. For par-value common stock, the equity accounts credited are Common Stock, for an amount equal to the par value, and Paid-In Capital in Excess of Par, Common Stock, for the premium on the common stock.

To illustrate, we will assume that the Boston Lakers Basketball Team (a corporation) issued 1,000 shares of $1 par-value common stock for $50 per share. The entry to record the stock issuance is:

| | | |
|---|---|---|
| Cash (1,000 shares × $50) | 50,000 | |
| Common Stock (1,000 shares × $1 par value) | | 1,000 |
| Paid-In Capital in Excess of Par, Common Stock (1,000 shares × $49) | | 49,000 |
| *Issued 1,000 shares of $1 par-value common stock at $50 per share.* | | |

A similar entry would be made if the stock being issued were preferred stock. The total par value of the common and preferred stock, along with the associated amounts of paid-in capital in excess of par, constitutes a corporation s **contributed capital**.

**contributed capital** The portion of owners equity contributed by investors (the owners) in exchange for shares of stock.

This illustration points out two important elements in accounting for the issuance of stock: (1) the equity accounts identify the type of stock being issued (common or preferred), and (2) the proceeds from the sale of the stock are divided into the portion attributable to its par value and the portion paid in excess of par value. These distinctions are important because the owners equity section of the balance sheet should correctly identify the specific sources of capital so that the respective rights of the various stockholders can be known.

If the stock being issued has no par value, only one credit is included in the entry. To illustrate, assume that the Lakers stock does not have a par value and that the corporation issued 1,000 shares for $50 per share. The entry to record this stock issuance would be:

| | | |
|---|---|---|
| Cash | 50,000 | |
| Common Stock | | 50,000 |
| *Issued 1,000 shares of no-par stock at $50 per share.* | | |

Do you want to try your hand at buying some shares of stock? Go to **http://ameritrade.com**, the Web site for one of the leading Internet stock trading companies. How much is the commission for executing one stock trade?

Although stock is usually issued for cash, other considerations may be involved. To illustrate the kinds of entries made when stock is issued for noncash considerations, we will assume that a prospective stockholder exchanged a piece of land for 5,000 shares of the Boston Lakers $1 par-value common stock. Assuming the market value of the stock at the date of the exchange was $40 per share, the entry is:

| | | |
|---|---|---|
| Land (5,000 shares × $40) | 200,000 | |
| Common Stock (5,000 shares × $1) | | 5,000 |
| Paid-In Capital in Excess of Par, Common Stock (5,000 shares × $39) | | 195,000 |
| *Issued 5,000 shares of $1 par-value common stock for land (5,000 shares × $40 per share = $200,000).* | | |

When noncash considerations are received in payment for stock, the assets or services received should be recorded at the current market value of the stock issued. If the market value of the stock cannot be determined, the market value of the assets or services received should be used as the basis for recording the transaction.

## Accounting for Stock Repurchases

**treasury stock** Issued stock that has subsequently been reacquired by the corporation.

Sometimes, when a company has excess cash or needs some of its shares of stock back from investors, it may purchase some of its own outstanding stock. This repurchased stock is called **treasury stock** by accountants. There are many reasons for a firm to buy its own stock. Five of the most common are that management:

1. wants the stock for a profit-sharing, bonus, or stock-option plan for employees,
2. feels that the stock is selling for an unusually low price and is a good buy,
3. wants to stimulate trading in the company s stock,
4. wants to remove some shares from the market in order to avoid a hostile takeover, or
5. wants to increase reported earnings per share by reducing the number of shares of stock outstanding.

Many successful U.S. companies have ongoing stock repurchase plans. For example, **MICROSOFT** disclosed in its 1999 annual report (Appendix A) that it spent $2.95 billion in 1999 to repurchase 44 million of its own shares. **COCA-COLA** spent $2.8 billion in the years 1997 1999 repurchasing its own shares. The most aggressive stock buyback program is **GENERAL ELECTRIC** s a number of years ago GE announced its intention to spend a total of $13 billion buying back its own shares. As of the end of 1999, GE had already exceeded this amount, spending a cumulative total of $22.6 billion on stock repurchases.

When a firm purchases stock of another company, the investment is included as an asset on the balance sheet. However, a corporation cannot own part of itself, so treasury stock is not considered an asset. Instead, it is a contra-equity account and is included on the balance sheet as a deduction from stockholders equity. Think of it this way: when a corporation issues shares, its equity is increased; when the corporation buys those shares back, its equity is reduced. The reporting of treasury stock is illustrated in the stockholders equity section of the balance sheet for General Electric in Exhibit 11-4.

Notice that the $22.567 billion spent by General Electric to buy back its own shares as of December 31, 1999, is shown as a subtraction from total share owners equity. By the way, the other capital included in GE s equity section is primarily composed of paid-in capital in excess of par. Also, the unrealized gains and currency translation adjustment items are quite interesting and controversial, as will be explained in a later section.

For General Electric, the total amount invested by stockholders is $11,384 million, which is the sum of common stock at par ($594 million) and paid-in capital in excess of par (other capital of $10,790 million). And yet GE has spent $22,567 million buying back shares from stockholders. How is this possible?

Treasury stock is usually accounted for on a cost basis; that is, the stock is debited at its cost (market value) on the date of repurchase. To illustrate, we assume that 100 shares of the $1 par-value common stock were reacquired by the Boston Lakers for $60 per share. The entry to record the repurchase is:

| | | |
|---|---|---|
| Treasury Stock, Common | 6,000 | |
| Cash (100 shares × $60) | | 6,000 |
| *Purchased 100 shares of treasury stock at $60 per share.* | | |

**exhibit 11-4** Share Owners Equity for General Electric

**General Electric Company**
**December 31, 1999 and 1998**
**Share Owners Equity**
**(in millions of U.S. dollars)**

| | 1999 | 1998 |
|---|---|---|
| Common stock | $ 594 | $ 594 |
| Unrealized gains on investment securities net | 626 | 2,402 |
| Accumulated currency translation adjustments | (1,370) | (738) |
| Other capital | 10,790 | 6,808 |
| Retained earnings | 54,484 | 48,553 |
| Less common stock held in treasury | (22,567) | (18,739) |
| Total share owners equity | $42,557 | $38,880 |

**fyi**

An alternative way to account for stock repurchases is called the par-value method. This method, though not used as frequently as the cost method illustrated in this section, is the method of choice for a number of large U.S. companies including Microsoft, INTEL, and WAL-MART. The par-value method of accounting for stock repurchases is covered in intermediate accounting courses.

The effect of this entry is to reduce both total assets (Cash) and total stockholders equity by $6,000.

When treasury stock is reissued, the treasury stock account must be credited for the original amount paid to reacquire the stock. If the treasury stock s reissuance price is greater than its cost, an additional credit must be made to an account called Paid-In Capital, Treasury Stock. Together, these credits show the net increase in total stockholders equity. At the same time, the cash account is increased by the total amount received upon reissuance of the treasury stock.

To illustrate, we assume that 40 of the 100 shares of the treasury stock that were originally purchased for $60 per share are reissued at $80 per share. The entry to record that reissuance is:

| | | |
|---|---|---|
| Cash (40 shares × $80) | 3,200 | |
| Treasury Stock, Common (40 shares × $60 cost) | | 2,400 |
| Paid-In Capital, Treasury Stock [40 × ($80 − $60)] | | 800 |
| *Reissued 40 shares of treasury stock at $80 per share.* | | |

**caution**

Do not credit a gain when treasury stock is reissued at a price greater than its cost. Gains are associated with a company s operations, not with a company buying and selling its own shares.

The company now has a balance of $3,600 in the treasury stock account (60 shares at $60 per share).

Sometimes the reissuance price of treasury stock is less than its cost. As before, the entry involves a debit to Cash for the amount received and a credit to Treasury Stock for the cost of the stock. However, because an amount less than the repurchase cost has been received, an additional debit is required. The debit is to Paid-In Capital, Treasury Stock if there is a balance in that account from previous transactions, or to Retained Earnings if there is no balance in the paid-in capital, treasury stock account.

To illustrate, we will consider two more treasury stock transactions. First, we assume that another 30 shares of treasury stock are reissued for $40 per share, $20 less than their cost. Because Paid-In Capital, Treasury Stock has a balance of $800, the entry to record this transaction is:

| | | |
|---|---|---|
| Cash (30 shares × $40) | 1,200 | |
| Paid-In Capital, Treasury Stock | 600 | |
| Treasury Stock, Common (30 shares × $60 cost) | | 1,800 |
| *Reissued 30 shares of treasury stock at $40 per share; original cost was $60 per share.* | | |

Note that after this transaction is recorded, the balance in Paid-In Capital, Treasury Stock is $200 ($800 − $600).

Next, we assume that the company reissues 20 additional shares at $45 per share. The entry to record this transaction is:

| | | |
|---|---|---|
| Cash (20 shares × $45) | 900 | |
| Paid-In Capital, Treasury Stock | 200 | |
| Retained Earnings | 100 | |
| Treasury Stock (20 shares × $60 cost) | | 1,200 |
| *Reissued 20 shares of treasury stock at $45 per share; original cost was $60 per share.* | | |

In this transaction, the selling price was $300 less than the cost of the treasury stock. Because the paid-in capital, treasury stock account had a balance of only $200, Retained Earnings was debited for the remaining $100.

## Balance Sheet Presentation

We have discussed the ways in which stock transactions affect owners equity accounts. We will now show how these accounts are summarized and presented on the balance sheet. The following data, with the addition of the preferred stock information in (1), summarize the stock transactions of the Boston Lakers shown earlier:

1. $40 par-value preferred stock: issued 1,000 shares at $45 per share.
2. $1 par-value common stock: issued 1,000 shares at $50 per share.
3. $1 par-value common stock: issued 5,000 shares for land with a fair market value of $200,000.
4. Treasury stock, common: purchased 100 shares at $60; reissued 40 shares at $80; reissued 30 shares at $40; reissued 20 shares at $45.

With these data, and assuming a Retained Earnings balance of $100,000, the stockholders equity section would be as shown in Exhibit 11-5.

**exhibit 11-5** Stockholders Equity for Boston Lakers

**Boston Lakers Basketball Team**
**Stockholders Equity**

| | |
|---|---|
| Preferred stock ($40 par value, 1,000 shares issued and outstanding) | $ 40,000 |
| Common stock ($1 par value, 6,000 shares issued, 5,990 shares outstanding)* | 6,000 |
| Paid-in capital in excess of par, preferred stock | 5,000 |
| Paid-in capital in excess of par, common stock | 244,000 |
| Total contributed capital | $295,000 |
| Retained earnings (to be discussed) | 100,000 |
| Total contributed capital and retained earnings | $395,000 |
| Less treasury stock (10 shares of $1 par common at cost of $60 per share) | (600) |
| Total stockholders equity | $394,400 |

*Treasury shares are described as being issued but not outstanding. Thus, 6,000 common shares have been issued, but only 5,990 are outstanding because 10 are held by the Boston Lakers as treasury shares.

## to summarize

When a company issues stock, it debits Cash or a noncash account (Property, for example) and credits various stockholders equity accounts. Shares typically are assigned a par value, which is usually small in relation to the market value of the shares. Amounts received upon issuance of shares are divided into par value and paid-in capital in excess of par. A company s own stock that is repurchased is known as treasury stock and is included in the financial statements as a contra-stockholders equity account. Treasury stock is usually accounted for on a cost basis. The stockholders equity section of a balance sheet contains separate accounts for each type of stock issued, amounts paid in excess of par values, treasury stock, and retained earnings.

## RETAINED EARNINGS

**4**

Understand the factors that affect retained earnings, describe the factors determining whether a company can and should pay cash dividends, and account for cash dividends.

**retained earnings** The portion of a corporation s owners equity that has been earned from profitable operations and not distributed to stockholders.

**dividends** Distributions to the owners (stockholders) of a corporation.

**cash dividend** A cash distribution of earnings to stockholders.

Common stockholders can invest money in a corporation in two ways. First, as described in the previous section, common stockholders can buy shares of stock. Second, when the corporation makes money, the common stockholders can allow the corporation to keep those earnings to be reinvested in the business. **Retained earnings** is the name given to the aggregate amount of corporate earnings that have been reinvested in the business. The retained earnings balance is increased each year by net income and decreased by losses, dividends, and some treasury stock transactions (as illustrated earlier).

Remember, retained earnings is not the same as cash. In fact, a company can have a large Retained Earnings balance and be without cash, or it can have a lot of cash and a very small Retained Earnings balance. For example, on December 31, 1999, **DOW JONES & COMPANY** had a Cash balance of $86 million but a Retained Earnings balance of $810 million. Although both Cash and Retained Earnings are usually increased when a company has earnings, they typically are increased by different amounts. This occurs for two reasons: (1) the company s net income, which increases Retained Earnings, is accrual-based, not cash-based; and (2) cash from earnings may be invested in productive assets such as inventories, used to pay off loans, or spent in any number of ways, many of which do not affect net income or retained earnings. In summary, cash is an asset; retained earnings is one source of financing (along with borrowing and direct stockholder investment) that a corporation can use to get funds to acquire assets.

**fyi**

*Fortune* magazine maintains a list of the top 50 e-companies, called the Fortune e-50. A random sample of 10 of these companies indicated that only one of the 10 paid cash dividends to common stockholders in 1999. Thus, we see that high-tech, high-growth companies are not likely to pay cash dividends. By the way, the only one of the sampled e-50 companies to pay cash dividends to common stockholders was **IBM**, not exactly a young start-up.

### Cash Dividends

If you had your own business and wanted to withdraw money for personal use, you would simply withdraw it from the company s checking account or cash register. In a corporation, a formal action by the board of directors is required before money can be distributed to the owners. In addition, such payments must be made on a pro rata basis. That is, each owner must receive a proportionate amount on the basis of ownership percentage. These pro rata distributions to owners are called **dividends**. When paid in the form of cash, they are called **cash dividends**. The amount of dividends an individual stockholder receives depends on the number of shares owned and on the per-share amount of the dividend.

**SHOULD A COMPANY PAY CASH DIVIDENDS?** Note that a company does not have to pay cash dividends. Theoretically, a company that does not pay dividends should be able to reinvest its earnings in assets that will enable it to grow more rapidly than its dividend-paying competitors. This added growth will presumably be reflected in increases in the per-share price of the stock. In practice, most public companies pay regular cash dividends, but some well-known companies do not. For example, **MICROSOFT** has never paid cash dividends to its common stockholders.

So, should a corporation pay cash dividends or not? Well, the surprising answer is that no one knows the answer to that question. Ask your finance professor what he or she thinks. Although no one knows the theoretically best dividend policy, three general observations can be made:

Stable companies pay out a large portion of their income as cash dividends.
Growing companies (such as Microsoft) pay out a small portion of their income as cash dividends. They keep the funds inside the company for expansion.
Companies are very cautious about raising dividends to a new level because once investors come to expect a certain level of dividends, they see it as very bad news if the company reduces the dividends back to the old level.

If you were a Microsoft shareholder, would you want to receive a high level of cash dividends, or would you prefer that Bill Gates use your share of the profits for business expansion?

Although cash dividends are the most common type of dividend, corporations can distribute other types of dividends as well. A stock dividend is a distribution of additional shares of stock to stockholders. Stock dividends will be discussed in the expanded material section of this chapter. A property dividend is a distribution of corporate assets (for example, the stock of another firm) to stockholders. Property dividends are quite rare. In this section, only the accounting for cash dividends will be discussed.

**ACCOUNTING FOR CASH DIVIDENDS** Three important dates are associated with dividends: (1) declaration date, (2) date of record, and (3) payment date. The first is when the board of directors formally declares its intent to pay a dividend. On this **declaration date**, the company becomes legally obligated to pay the dividend. Assuming that the board of directors votes on December 15, 2003, to declare an $8,000 dividend, this liability may be recorded as follows:

**declaration date** The date on which a corporation s board of directors formally decides to pay a dividend to stockholders.

| | | |
|---|---|---|
| Dividends | 8,000 | |
| Dividends Payable | | 8,000 |
| *Declared dividend on December 15, 2003.* | | |

At the end of the year, the dividends account is closed to Retained Earnings by the following entry:

| | | |
|---|---|---|
| Retained Earnings | 8,000 | |
| Dividends | | 8,000 |
| *To close Dividends to Retained Earnings.* | | |

From this entry, you can see that a declaration of dividends reduces Retained Earnings and, eventually, the amount of cash on hand. Thus, though not considered to be an expense, dividends do reduce the amount a company could otherwise invest in productive assets.

Alternatively, a declaration of dividends can be recorded by debiting Retained Earnings directly. However, using the dividends account instead of Retained Earnings allows a company to keep separate records of dividends paid to preferred and common stockholders. Whichever method is used, the end result is the same: a decrease in Retained Earnings.

**date of record** The date selected by a corporation s board of directors on which the stockholders of record are identified as those who will receive dividends.

The second important dividend date is the **date of record**. Falling somewhere between the declaration date and the payment date, this is the date selected by the board of directors on which the stockholders of record are identified as those who will receive dividends. Because many corporate stocks are in flux being bought and sold daily it is important that the stockholders who will receive the dividends be identified. No journal entry is required on the date of record; the date of record is simply noted in the minutes of the directors meeting and in a letter to stockholders.

**dividend payment date** The date on which a corporation pays dividends to its stockholders.

As you might expect, the third important date is the **dividend payment date**. This is the date on which, by order of the board of directors, dividends will be paid. The entry to record a dividend payment would typically be:

| | | |
|---|---|---|
| Dividends Payable | 8,000 | |
| Cash | | 8,000 |
| *Paid dividends declared on December 15, 2003.* | | |

The following press release, made by Dow Jones on January 19, 2000 (declaration date), identifies both the date of record and the dividend payment date:

> Dow Jones & Company announced that its Board of Directors voted today to increase the quarterly dividend on the common stock and Class B common stock to 25 cents a share from 24 cents a share. The 4.2% increase, the first for Dow Jones in four years, raises the indicated annual dividend rate to one dollar per share. The first new quarterly dividend is payable March 1 to shareholders of record as of February 1.

**fyi**

When Dow Jones announced its dividend increase on January 19, 2000, its stock price increased by just 1.9% over the following two days. This is a small price rise and may suggest that investors already were aware of the planned dividend increase.

As mentioned earlier, once a dividend-paying pattern has been established, the expectation of dividends is built into the per-share price of the stock. A reduction in the dividend usually produces a sharp drop in the price. Similarly, an increased dividend usually triggers an increase in the stock price. Dividend increases are usually considered to set a precedent, indicating that future dividends will be at this per-share amount or more. With this in mind, boards of directors are careful about increasing or decreasing dividends.

**DIVIDEND PREFERENCES** When cash dividends are declared by a corporation that has both common and preferred stock outstanding, how the dividends are allocated to the two classes of investors depends on the rights of the preferred stockholders. These rights are identified when the stock is approved by the state. Two dividend preferences, as they are called, are (1) current-dividend preference and (2) cumulative-dividend preference.

***Current-Dividend Preference*** Preferred stock has a dividend percentage associated with it and is typically described as follows: 5% preferred, $40 par-value stock, 1,000 shares outstanding. The first figure 5% in this example is a percentage of the par value and can be any amount, depending on the particular stock. So, $2 per share (0.05 × $40 par) is the amount that will be paid in dividends to preferred stockholders each year that dividends are declared. The fact that preferred stock dividends are fixed at a specific percentage of their par value makes them somewhat similar to the interest paid to bondholders. The **current-dividend preference** requires that when dividends are paid, this percentage of the preferred stock s par value be paid to preferred stockholders before common stockholders receive any dividends.

**current-dividend preference** The right of preferred stockholders to receive current dividends before common stockholders receive dividends.

To illustrate the payment of different types of dividends, the following data from the Boston Lakers Basketball Team will be used throughout this section. (The various combinations of dividend preferences illustrated over the next few pages are summarized in Cases 1 to 4 in Exhibit 11-6.) As a reminder, the outstanding stock includes:

Preferred stock: 5%, $40 par value, 1,000 shares issued and outstanding.
Common stock: $1 par value, 6,000 shares issued, 5,990 shares outstanding.

**exhibit 11-6** Dividend Preferences: Summary of Cases 1 to 4

| Case | Preferred Dividend Feature | Years in Arrears | Total Dividend | Preferred Dividend | Common Dividend |
|---|---|---|---|---|---|
| 1 | 5%, Noncumulative | Not applicable | $ 1,500 | $1,500 | $ 0 |
| 2 | 5%, Noncumulative | Not applicable | 3,000 | 2,000 | 1,000 |
| 3 | 5%, Cumulative | 2 | 5,000 | 5,000 | 0 |
| 4 | 5%, Cumulative | 2 | 11,000 | 6,000 | 5,000 |

To begin, note that, as with all preferred stock, the Lakers 5% preferred stock has a current-dividend preference: Before any dividends can be paid to common stockholders, preferred stockholders must be paid a total of $2,000 ($40 × 0.05 × 1,000 shares). Thus, if only $1,500 of dividends are declared (Case 1), preferred stockholders will receive the entire dividend payment. If $3,000 are declared (Case 2), preferred stockholders will receive $2,000 and common stockholders, $1,000.

**cumulative-dividend preference** The right of preferred stockholders to receive current dividends plus all dividends in arrears before common stockholders receive any dividends.

***Cumulative-Dividend Preference*** The **cumulative-dividend preference** can be quite costly for common stockholders because it requires that preferred stockholders be paid current dividends plus all unpaid dividends from past years before common stockholders receive anything. If dividends have been paid in all previous years, then only the current 5% must be paid to preferred stockholders. But if dividends on preferred stock were not paid in full in prior years, the cumulative deficiency must be paid before common stockholders receive anything.

**dividends in arrears** Missed dividends for past years that preferred stockholders have a right to receive under the cumulative-dividend preference if and when dividends are declared.

With respect to the cumulative feature, it is important to repeat that companies are not required to pay dividends. Any past unpaid dividends are called **dividends in arrears**. Because they do not have to be paid unless dividends are declared in the future, dividends in arrears do not represent actual liabilities and thus are not recorded in the accounts. Instead, they are reported in the notes to the financial statements.

To illustrate the distribution of dividends for cumulative preferred stock, we will assume that the Boston Lakers Basketball Team has not paid any dividends for the last two years but has declared a dividend in the current year. The Lakers must pay $6,000 in dividends to preferred stockholders before they can give anything to the common stockholders. The calculation is as follows:

| | |
|---|---|
| Dividends in arrears, 2 years | $4,000 |
| Current dividend preference ($40 × 0.05 × 1,000 shares) | 2,000 |
| Total | $6,000 |

Therefore, if the Lakers pay only $5,000 in dividends (Case 3), preferred stockholders will receive all the dividends, common stockholders will receive nothing, and there will still be dividends in arrears of $1,000 the next year. If $11,000 in dividends are paid (Case 4), preferred stockholders will receive $6,000, and common stockholders will receive $5,000.

The entries to record the declaration and payment of dividends in Case 4 are:

**Date of Declaration**

| | | |
|---|---|---|
| Dividends, Preferred Stock | 6,000 | |
| Dividends, Common Stock | 5,000 | |
| Dividends Payable | | 11,000 |
| *Declared dividends on preferred and common stock.* | | |

**Date of Payment**

| | | |
|---|---|---|
| Dividends Payable | 11,000 | |
| Cash | | 11,000 |
| *Paid dividends on preferred and common stock.* | | |

**CONSTRAINTS ON PAYMENT OF CASH DIVIDENDS** Earlier in this section, the question was asked whether a company should pay cash dividends. A related question is: Can the company legally pay cash dividends? To illustrate, consider the following exaggerated scenario. Tricky Company obtains a corporate charter, borrows $1 million from Na ve Bank, pays out a $1 million cash dividend to the stockholders, and all the stockholders disappear to the Bahamas. Is this a legal possibility? No, it isn t, because the corporate right to declare cash dividends is

regulated by state law in order to protect creditors. The right to declare cash dividends is often linked to a company s Retained Earnings balance.

**f y i**

Delaware has a reputation for having the least restrictive dividend laws. This is one reason many of the major U.S. companies are incorporated in the state of Delaware.

In many states, a company is not allowed to pay cash dividends in an amount that would cause the retained earnings balance to be negative. Thus, if the retained earnings balance of the Boston Lakers were $8,500, the $11,000 dividend in Case 4 discussed above could not be paid, even if the Lakers had the available cash to make the payment. The incorporation laws in many states are less restrictive and allow the payment of cash dividends in excess of the retained earnings balance if, for example, current earnings are strong or the market value of the assets is high.

Frequently, lenders do not rely on state incorporation laws to protect them from excess cash dividend payments by corporations to which they lend money. Instead, the loan contract itself includes restrictions on the payment of cash dividends during the period that the loan is outstanding. In this way, lenders are able to prevent cash that should be used to repay loans from being paid to stockholders as dividends.

## Dividend Payout Ratio

**dividend payout ratio** A measure of the percentage of earnings paid out in dividends; computed by dividing cash dividends by net income.

A ratio of interest to stockholders is the **dividend payout ratio**. This ratio indicates the percentage of net income paid out during the year in the form of cash dividends and is computed as follows:

$$\text{Dividend payout ratio} = \frac{\text{Cash dividends}}{\text{Net income}}$$

Dividend payout ratio values for Dow Jones, Microsoft, and **GENERAL ELECTRIC** for 1999 are computed below. The numbers are in millions.

| | Dow Jones | Microsoft | General Electric |
|---|---|---|---|
| Cash dividends | $87 | $28 | $4,786 |
| Net income | $272 | $7,785 | $10,717 |
| Dividend payout ratio | 32.0% | 0.4% | 44.7% |

Both Dow Jones and General Electric pay out between 30 and 50% of their annual income as dividends, a normal level for large U.S. corporations. Microsoft s low dividend payout ratio is indicative of a rapidly expanding company. In fact, all of the Microsoft cash dividends are preferred stock dividends; as mentioned earlier, Microsoft has never paid any cash dividends to its common stockholders.

## to summarize

The retained earnings account reflects the total undistributed earnings of a business since incorporation. It is increased by net income and decreased by dividends, net losses, and some treasury stock transactions. The important dates associated with a cash dividend are the date of declaration, the date of record, and the payment date. Preferred stockholders can be granted a current and a cumulative preference for dividends over the rights of common stockholders. In some states, the payment of cash dividends is limited to an amount not to exceed the existing Retained Earnings balance. The dividend payout ratio (cash dividends divided by net income) reveals the percentage of net income that is paid out as cash dividends.

5

Describe the purpose of reporting comprehensive income in the equity section of the balance sheet, and prepare a statement of stockholders equity.

## OTHER EQUITY ITEMS

In addition to the two major categories of contributed capital and retained earnings, the equity section of a balance sheet often includes a number of miscellaneous items. These items are gains or losses that bypass the income statement when they are recognized. A further discussion of these items is given below.

### Equity Items That Bypass the Income Statement

Since 1980, the equity sections of U.S. balance sheets have begun to fill up with a strange collection of items, each the subject of an accounting controversy. Two of these items are summarized below:

*Foreign currency translation adjustment.* The foreign currency translation adjustment arises from the change in the equity of foreign subsidiaries (as measured in terms of U.S. dollars) that occurs as a result of changes in foreign currency exchange rates. For example, if the Japanese yen weakens relative to the U.S. dollar, the equity of Japanese subsidiaries of U.S. firms will decrease, in dollar terms. Before 1981, these changes were recognized as losses or gains on the income statement. Multinational firms disliked this treatment because it added volatility to reported earnings. The FASB changed the accounting rule, and now these changes are reported as direct adjustments to equity on the balance sheet, insulating the income statement from this aspect of foreign currency fluctuations.

*Unrealized gains and losses on available-for-sale securities.* As will be explained in Chapter 12, available-for-sale securities are securities that a company purchased without intending to resell them immediately but also not necessarily planning to hold them forever. When the FASB was considering requiring securities to be reported at their market values on the balance sheet, companies complained about the income volatility that would be caused by recognizing these changes as gains or losses on the income statement. The FASB made the standard more acceptable to businesses by allowing unrealized gains and losses on available-for-sale securities to bypass the income statement and go straight to the equity section of the balance sheet.

The hodgepodge of direct equity adjustments described above is conceptually unsatisfying. These adjustments have arisen on a case-by-case basis as part of the FASB s effort to establish accounting standards that are accepted by the business community. As mentioned, many businesspeople are opposed to including these categories on the income statement because, they say, the income statement would become cluttered with gains and losses from market value changes, distracting from the purpose of the income statement, which is to focus on reporting profits from the activities of the business. The compromise that allows market values in the balance sheet while keeping the income statement uncluttered is the creation of a separate category of equity called **accumulated other comprehensive income**. Accumulated other comprehensive income is composed of certain market-related gains and losses that are not included in the computation of net income. It is important to remember that accumulated other comprehensive income is not income at all, but an equity category that summarizes the changes in equity that result during the period from market-related increases and decreases in the reported values of assets and liabilities. The reporting of accumulated other comprehensive income equity is illustrated in the 1999 equity section of **DOW JONES & COMPANY**, shown in Exhibit 11-7.

**accumulated other comprehensive income** Certain market-related gains and losses that are not included in the computation of net income; for example, foreign currency translation adjustments and unrealized gains or losses on investments.

**statement of comprehensive income** A statement outlining the changes in accumulated comprehensive income that arose during the period.

A **statement of comprehensive income** provides a place, outside the regular income statement, for reporting all the unrealized gains and losses that are reported as equity adjustments. The appeal of comprehensive income is that this approach preserves the traditional income statement (calming the fears of the business community) but allows unrealized gains and losses to be reported. In essence, comprehensive income makes it possible to recognize unrealized gains and losses so that current market values can be reported on the balance sheet without having those unrealized gains and losses affect the income statement.

The statement of comprehensive income is very new; U.S. companies have been required to present it starting December 31, 1998. Dow Jones &

Which will have a greater impact on a company s stock price: net income of $100 million or a $100 million unrealized gain from a change in exchange rates or securities prices? Explain your answer.

**exhibit 11-7** Equity Section for Dow Jones & Company

**Dow Jones & Company s Equity Section**
**(amounts in millions of dollars)**

| | 1999 | 1998 |
|---|---|---|
| Common stocks | | |
| Common stock, par value $1 per share | $ 81,004 | $ 80,899 |
| Class B common stock, convertible, par value $1 per share | 21,177 | 21,282 |
| | $ 102,181 | $102,181 |
| Additional paid-in capital | 137,487 | 137,479 |
| Retained earnings | 809,517 | 624,239 |
| Accumulated other comprehensive income: | | |
| Unrealized (loss) gain on investments | (941) | 35,775 |
| Cumulative translation adjustment | (1,257) | 38 |
| | $1,046,987 | $899,712 |
| Less treasury stock | 493,497 | 390,372 |
| Total stockholders equity | $ 553,490 | $509,340 |

Company s comprehensive income presentation for 1999 is shown in Exhibit 11-8. Note that net income is one component in the computation of comprehensive income. For Dow Jones, 1997 was a particularly bad year, with each of the three reported elements of comprehensive income being negative. By the way, the large loss reported by Dow Jones in 1997 resulted from a $1 billion restructuring charge.

## Statement of Stockholders Equity

**statement of stockholders equity** A financial statement that reports all changes in stockholders equity.

Companies that have numerous changes in their stockholders equity accounts during the year usually include a **statement of stockholders equity** (also called a statement of changes in stockholders equity) with their financial statements. This statement reconciles the beginning and ending balances for all stockholders equity accounts reported on the balance sheet.

An illustrative statement of stockholders equity from the 1999 annual report of Dow Jones & Company is presented in Exhibit 11-9. Note the following items in the statement:

As mentioned earlier in the chapter, Dow Jones has two classes of common stock. Class B common shares with a par value of $105,000 were converted into ordinary common shares during the year.

Dow Jones both bought and sold treasury shares during the year. The $4,539,000 decrease in Additional Paid-In Capital from treasury stock sales indicates that these treasury shares were resold for less than the $43,604,000 Dow Jones spent to repurchase them.

**exhibit 11-8** Statement of Comprehensive Income for Dow Jones & Company

| (in thousands) | 1999 | 1998 | 1997 |
|---|---|---|---|
| Net income (loss) | $272,429 | $ 8,362 | $(802,132) |
| Unrealized gain (loss) on investments | 2,124 | 32,379 | (8,957) |
| Foreign currency translation adjustments | (1,295) | 555 | (3,644) |
| Other | (38,840) | 9,023 | |
| Comprehensive income | $234,418 | $50,319 | $(814,733) |

**exhibit 11-9** Statement of Stockholders Equity for Dow Jones & Company

**CONSOLIDATED STATEMENT OF STOCKHOLDERS EQUITY**
**Dow Jones & Company, Inc.**
**For the Year Ended December 31, 1999**
**(amounts in thousands of U.S. dollars)**

| | Common Stock | Class B Common Stock | Additional Paid-In Capital | Retained Earnings | Accumulated Other Comprehensive Income | Treasury Stock | Total |
|---|---|---|---|---|---|---|---|
| Balance, December 31, 1998 | $80,899 | $21,282 | $137,479 | $624,239 | $35,813 | $(390,372) | $509,340 |
| Net income 1999 | | | | 272,429 | | | $272,429 |
| Unrealized gain on investments | | | | | 2,124 | | 2,124 |
| Translation adjustment | | | | | (1,295) | | (1,295) |
| Other | | | | | (38,840) | | (38,840) |
| Comprehensive income | | | | | | | $234,418 |
| Dividends, $0.96 per share | | | | (87,151) | | | (87,151) |
| Conversion of class B common stock into common stock | 105 | (105) | | | | | |
| Other equity changes | | | 4,547 | | | | 4,547 |
| Sales under stock compensation plans | | | (4,539) | | | 43,604 | 39,065 |
| Purchase of treasury stock | | | | | | (146,729) | (146,729) |
| Balance, December 31, 1999 | $81,004 | $21,177 | $137,487 | $809,517 | $(2,198) | $(493,497) | $553,490 |

The last column in the statement reflects the total beginning and ending stockholders equity account balances and all increases and decreases. Both the individual account balances and total Stockholders Equity at December 31, 1999, are reported on the balance sheet of Dow Jones & Company.

## to summarize

Accumulated other comprehensive income is not income at all, but an equity category that summarizes the effect on equity of certain market-related gains and losses. Two examples of items giving rise to accumulated other comprehensive income are market fluctuations in the value of some investment securities and changes in the value of assets and liabilities held by foreign subsidiaries that are caused by exchange rate changes. A statement of stockholders equity summarizes the changes affecting all the different categories of equity during the year.

## expanded material

**Three topics related to equity financing need additional explanation. These topics are stock dividends and stock splits, prior-period adjustments, and accounting for equity financing in proprietorships and partnerships.**

6

Account for stock dividends and distinguish them from stock splits.

**stock dividend** A pro rata distribution of additional shares of stock to stockholders.

## ACCOUNTING FOR STOCK DIVIDENDS

Corporations sometimes distribute additional shares of their own stock to stockholders instead of paying a cash dividend. These **stock dividends** must be distributed to each stockholder in proportion to the number of shares held. For example, if a company issues a 10% stock dividend, each stockholder will receive one additional share for every 10 shares owned.

There is considerable disagreement as to whether stockholders receive anything of value from a stock dividend. Certainly, they do not receive corporate assets, as with a cash dividend. Nor does any stockholder own a larger percentage of the corporation after the stock dividend than before, because each stockholder receives a pro rata share of the stock issued. In fact, one way to view a stock dividend is that the company has just cut the total ownership up into smaller pieces, with each stockholder owning proportionately more pieces, and nothing has really changed.

Those who argue that stock dividends have value to stockholders point out that companies frequently maintain the same level of cash dividends per share after the stock dividend as before. Accordingly, a stock dividend is an indirect method of increasing the amount of total cash dividends to be received in the future by each stockholder.

Stock dividends are also sometimes used to mollify investors and lull them into thinking that a company is maintaining its record of paying dividends when, in fact, it is not. Corporations that issue dividends each year do not want to miss a year, so for them a stock dividend can be a useful substitute for cash when poor financial circumstances make payment of cash dividends difficult. It isn t clear whether investors are actually fooled by this tactic.

To illustrate the accounting for a stock dividend and to keep the example simple, we will assume that the stockholders equity of the Boston Lakers Basketball Team is:

| | |
|---|---|
| Common stock ($1 par value, 10,000 shares issued and outstanding) | $ 10,000 |
| Paid-in capital in excess of par | 40,000 |
| Retained earnings | 80,000 |
| Total stockholders equity | $130,000 |

If a 10% stock dividend is declared and issued when the stock s current market price is $70, the entry to record the stock dividend is:

| | | |
|---|---|---|
| Retained Earnings (1,000 shares × $70) | 70,000 | |
| Common Stock (1,000 shares × $1 par) | | 1,000 |
| Paid-In Capital in Excess of Par, Common Stock | | 69,000 |
| *Declared and issued a 10% common stock dividend.* | | |

business environment essay

**Do You Want a Stock Tip?** The conventional wisdom is that the announcement of a stock split is good news. Academic research has confirmed this a company s share value goes up an average of 3% in the one or two days after a 2-for-1 split announcement appears in *The Wall Street Journal*. But for most of us, this market reaction to the split news is too fast to allow us to make any money. By the time we learn about the split announcement and buy the shares, the share price will have already increased.

All is not lost, however. Additional academic research suggests that the share values of splitting firms continue to go up for at least a year after the split announcement. In fact, if you buy the shares of a company one week after that company announces a stock split, you will earn, on average, an extra 7.9% on your investment during the following year. This extra 7.9%

**STOP & THINK** Look at the Boston Lakers example and explain how the accounting rules discourage companies from declaring small stock dividends on a regular basis.

Because the dividend was 10% and there were previously 10,000 common shares outstanding, 1,000 additional shares were issued for the dividend. The accounting rules dictate that when a small stock dividend is issued, the market value of the newly issued shares is transferred out of Retained Earnings, just as if that same amount had been paid out in cash. If a stock dividend is relatively large, the accounting rules state that only the par value of the newly issued shares is to be transferred out of Retained Earnings. A small stock dividend is one that is less than 25%.

To illustrate the accounting for a large stock dividend, we assume the same stockholders equity for the Boston Lakers Basketball Team, except that the stock dividend is now 30%. The entry is:

| | | |
|---|---|---|
| Retained Earnings | 3,000 | |
| Common Stock (3,000 shares × $1 par) | | 3,000 |
| *Declared and issued a 30% common stock dividend (10,000 shares × 0.30 = 3,000 shares).* | | |

The impact of the 10 and 30% stock dividends on the Boston Lakers stockholders equity is detailed below:

| | Before Stock Dividend | With 10% Stock Dividend | With 30% Stock Dividend |
|---|---|---|---|
| Common stock, $1 par value | $ 10,000 | $ 11,000 | $ 13,000 |
| Paid-in capital in excess of par | 40,000 | 109,000 | 40,000 |
| Retained earnings | 80,000 | 10,000 | 77,000 |
| Total stockholders equity | $130,000 | $130,000 | $130,000 |

Note that a stock dividend does not change the total amount of stockholders equity, regardless of the size of the dividend. The only effect is to reallocate some of the stockholders equity into different categories.

## Stock Splits

Many investors, particularly individuals with limited amounts to invest, will not purchase stocks with high market prices per share. For example, consider the case of **BERKSHIRE HATH-**

is over and above what you would have earned if you had invested in a similar company that had not announced a stock split.

Before you run off to buy *The Wall Street Journal* or subscribe to an online service that will alert you to stock split announcements, here are two more pieces of advice. First, always be suspicious of unsolicited stock tips (such as the one just given). You should ask yourself: If this is such a good idea, why hasn t the person who told me about it become rich? Second, always remember that academic research is a good thing to keep professors occupied during their spare time but is a notoriously unreliable (and unprofitable) basis for investment strategy.

**Source:** David L. Ikenberry, Graeme Rankine, and Earl K. Stice, What Do Stock Splits Really Signal? *Journal of Financial and Quantitative Analysis*, September 1996, pp. 357 375.

**AWAY**, which will be spotlighted in Chapter 12 and is the holding company controlled by Warren Buffett (one of the richest people in the United States). In October 2000, the shares of Berkshire Hathaway were selling for over $58,000 per share! At that price, not many of us can own even one share. To encourage more investors to buy their stocks, companies sometimes enact a **stock split**, replacing the outstanding shares with a larger number of new shares that sell at a lower price per share. **MICROSOFT**, for example, has split its stock eight times in order to bring down the price per share. Because of these splits, a single original share of Microsoft stock is now the equivalent (as of October 2000) of 144 shares.

**stock split** The replacement of outstanding shares of stock with a greater number of new shares.

In essence, the difference between a stock dividend and a stock split is that a stock split is usually bigger. Whereas a stock dividend might increase the number of shares outstanding by 10 or 25%, a stock split is likely to increase the number of shares outstanding by 50% (3-for-2 stock split), by 100% (2-for-1 stock split), or more. Actually, there is no clear distinction between a stock split and a stock dividend. For example, there are 50% stock dividends and there are also 5-for-4 stock splits.

From an accounting standpoint, stock splits are accounted for in one of two ways. The most common way is to simply account for the stock split as if it were a large stock dividend. Thus, a 2-for-1 stock split would be accounted for as a 100% stock dividend with the par value of the newly created shares transferred from Retained Earnings. Alternatively, a stock split can be accounted for by reducing the par value of all outstanding shares. For a 2-for-1 stock split accounted for in this way, the par value is halved and the number of shares is doubled. Thus, the total par value of stock outstanding is unchanged. For example, a firm with 20,000 shares of $10 par-value common stock outstanding may reduce the par value to $5 and increase the number of shares outstanding to 40,000. No journal entry is needed to account for a stock split in this way; the company merely makes note of the fact that the par value and number of shares outstanding have changed.

## to summarize

Stock dividends are distributions of additional stock to stockholders. Although a stock dividend does not increase a stockholder s percentage of ownership in a corporation, the additional stock may provide the expectation of increased future cash dividends. With small stock dividends, Retained Earnings is debited at the stock s market value; with large stock dividends (25% or more), Retained Earnings is debited at the stock s par value. A stock split is also an increase in the number of shares outstanding. Generally, stock splits are authorized so that companies can attract more investors with a lower market price per share. A stock split can be accounted for as a large stock dividend or by lowering the par value of each share.

## 7 PRIOR-PERIOD ADJUSTMENTS

Explain prior-period adjustments and prepare a statement of retained earnings.

**prior-period adjustments** Adjustments made directly to Retained Earnings in order to correct errors in the financial statements of prior periods.

In the first part of this chapter, it was shown that profits and losses, dividends, and certain treasury stock transactions affect retained earnings. In addition to these three events, there is one other type of event that affects retained earnings directly. This category includes adjustments to restate the net income of prior periods; these are called, appropriately, **prior-period adjustments**. Prior-period adjustments are relatively infrequent. In addition to some technical adjustments involving taxes and bonds, which are beyond the scope of this book, the main event that qualifies as a prior-period adjustment is the correction of an error in previous financial statements, such as an error in accounting for revenues or expenses of a previous period. In accounting for prior-period adjustments, Retained Earnings is increased or decreased directly because the net income for the years affected by the adjustments has already been closed to the retained earnings account.

**exhibit 11-10** Statement of Retained Earnings for Boston Lakers

**Boston Lakers Basketball Team**
**Statement of Retained Earnings**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Retained earnings, January 1, 2003 | | $300,000 |
| Prior-period adjustment: | | |
| Deduct adjustment for 2002 inventory correction | | (25,000) |
| Balance as restated | | $275,000 |
| Net income for 2003 | | 50,000 |
| Less dividends declared in 2003: | | |
| Preferred stock | $10,000 | |
| Common stock | 12,000 | (22,000) |
| Retained earnings, December 31, 2003 | | $303,000 |

**statement of retained earnings** A report that shows the changes in the retained earnings account during a period of time.

Prior-period adjustments (if there are any) and dividends are usually disclosed in a **statement of retained earnings**. Exhibit 11-10 shows how the Boston Lakers Basketball Team might present a statement of retained earnings, using arbitrary numbers.

## to summarize

In addition to net income, dividends, and certain treasury stock transactions, retained earnings can also be either increased or decreased by prior-period adjustments, which do not occur often. Prior-period adjustments usually involve corrections of errors in previous financial statements. Prior-period adjustments are disclosed in a statement of retained earnings.

**8** Understand basic proprietorship and partnership accounting.

## PROPRIETORSHIP AND PARTNERSHIP ACCOUNTING

Because the majority of businesses organized in the United States are proprietorships and partnerships, it is important to understand the accounting for equity financing in these types of businesses.

**capital account** An account in which a proprietor s or partner s interest in a firm is recorded; it is increased by owner investments and net income and decreased by withdrawals and net losses.

**drawings account** The account used to reflect periodic withdrawals of earnings by the owner (proprietor) or owners (partners) of a proprietorship or partnership.

The difference between accounting for proprietorships and partnerships and accounting for a corporation is the owners equity accounts. In a corporation, owners equity is divided into contributed capital and retained earnings (and some other equity items, as explained earlier in the chapter), with each of these categories possibly having several different accounts. In proprietorships and partnerships, all owners equity transactions are recorded in only two accounts, **Capital** and **Drawings**.

### Accounting for Equity Financing in a Proprietorship

To illustrate the accounting for the owner s equity of a proprietorship, we will assume that Megan Wilkes decides to start a small, independent real estate brokerage business. On January 1, 2003, she deposits $40,000 into a bank account to finance the business. The entry to record the $40,000 deposit is:

| | | |
|---|---|---|
| Cash | 40,000 | |
| Megan Wilkes, Capital | | 40,000 |
| *Invested $40,000 to start a real estate business.* | | |

Once the business is established, the entries to account for the purchase of assets, the payment of business expenses, and the receipt of revenues are similar to those for corporations. There is one exception, however. Whereas in a corporation salaries paid to management are accounted for as expenses, in a proprietorship the salary paid to the owner is a distribution of earnings. The managers of a corporation are considered to be employees, even if they are also stockholders in the company. The owners of a corporation receive dividends, which are deducted directly from Retained Earnings. In a proprietorship, the owner receives no dividends, so any drawing out of funds is considered to be a distribution to the owner. Hence, the name drawings account. If Megan Wilkes decides to withdraw $650 cash for personal use or as salary, the entry is:

| | | |
|---|---|---|
| Megan Wilkes, Drawings | 650 | |
| Cash | | 650 |
| *Withdrew $650 for personal use.* | | |

The account Megan Wilkes, Drawings is similar to a dividends account in a corporation: at year-end, it is closed to the owner s equity account, Megan Wilkes, Capital.

Assuming that Megan Wilkes withdrew only $650 during the year, the closing entry to eliminate the balance in the drawings account is:

| | | |
|---|---|---|
| Megan Wilkes, Capital | 650 | |
| Megan Wilkes, Drawings | | 650 |
| *To close the drawings account for the year.* | | |

If we also assume revenues of $100,000 and expenses of $86,000, Megan Wilkes s closing entry for net income is:

| | | |
|---|---|---|
| Revenues (individual revenue accounts) | 100,000 | |
| Expenses (individual expense accounts) | | 86,000 |
| Megan Wilkes, Capital | | 14,000 |
| *To close net income for the year to the owner s capital account.* | | |

From the preceding two entries, we see that Megan Wilkes s capital account has increased by $13,350 since January 1. Adding this amount to her original contribution results in a $53,350 balance at year-end, as the following statement of owner s capital shows:

**Megan Wilkes**
**Statement of Owner s Capital**
**For the Year Ending December 31, 2003**

| | |
|---|---|
| Megan Wilkes, capital, January 1, 2003 | $40,000 |
| Add net income | 14,000 |
| Total | $54,000 |
| Less withdrawals | (650) |
| Megan Wilkes, capital, December 31, 2003 | $53,350 |

The owner s equity section of Megan Wilkes s balance sheet would have only one item:

| | |
|---|---|
| Megan Wilkes, capital | $53,350 |

## Accounting for Equity Financing in a Partnership

Like a proprietorship, a partnership differs from a corporation primarily in accounting for owners equity. That is, a partnership has only two types of owners equity accounts, Capital and Drawings. Whereas a proprietorship has only one of each type of account, a partnership maintains separate capital and drawings accounts for each partner.

**FORMING A PARTNERSHIP** To illustrate the accounting for the formation of a partnership, assume that Dr. Mary Adams and Dr. Jim Bell decide to form a partnership on January 1, 2003. Their partnership agreement specifies that Dr. Adams will contribute land valued at $30,000, a building valued at $50,000, and $10,000 cash to the business and that Dr. Bell will contribute medical equipment valued at $40,000 plus $50,000 cash. The entry to record the capital contributions of the two partners is:

| | | |
|---|---|---|
| Cash | 60,000 | |
| Equipment | 40,000 | |
| Land | 30,000 | |
| Building | 50,000 | |
| Adams, Capital | | 90,000 |
| Bell, Capital | | 90,000 |
| *To record the investments of Adams and Bell in a partnership.* | | |

The valuation of noncash assets invested in a business is one of the most difficult tasks in accounting for the formation of a partnership. Generally, the fair market values on the date of transfer should be used, but these values must be agreed upon by all partners. For example, if the assets contributed by either Bell or Adams had been used in another business prior to the partnership, the values assigned to them for the partnership might be quite different from the amounts that were being carried on the previous business s books. Although the equipment invested by Bell may have had a book value of only $30,000, or the land and building invested by Adams may have cost only $15,000 several years ago, it is only fair to give each partner credit for the current market values of the assets at the time they are transferred to the partnership.

**PARTNERS DRAWINGS ACCOUNTS** As mentioned previously, in a corporation the managers are employees, so their salaries are accounted for as expenses; the stockholders are the owners, and distributions to them are in the form of dividends. In a partnership the managers are usually the owners, and any amounts they withdraw, either as salary or as a distribution of profits, are debited to their drawings accounts, which eventually reduces the capital accounts. Each partner has a drawings account in which his or her withdrawals are recorded for the year. For example, assume that sufficient income was earned during the year and that Adams withdrew $70,000 and Bell withdrew $55,000 as salary for the year. The entry is:

| | | |
|---|---|---|
| Adams, Drawings | 70,000 | |
| Bell, Drawings | 55,000 | |
| Cash | | 125,000 |
| *To record cash taken from the partnership as salary.* | | |

Note that any salaries paid to employees who are not partners are expenses of the business.

If Adams or Bell had withdrawn funds, for example, for living expenses, that amount would also be debited to the drawings account. At year-end, the debits in the drawings accounts are

totaled, and the accounts are closed to the partners capital accounts. Assuming that the total in each drawings account was the salary, the entry to close the drawings accounts for the year is:

| | | |
|---|---|---|
| Adams, Capital | 70,000 | |
| Bell, Capital | 55,000 | |
| Adams, Drawings | | 70,000 |
| Bell, Drawings | | 55,000 |
| *To close the drawings accounts for the year.* | | |

**statement of partners capital** A partnership report showing the changes in the capital balances; similar to a statement of retained earnings for a corporation.

**THE STATEMENT OF PARTNERS CAPITAL** Because most partners want an explanation of how their capital accounts change from year to year, a **statement of partners capital** is usually prepared. This statement, which is similar to a retained earnings statement for a corporation, lists the beginning Capital balances, additional investments, profits or losses from operations, withdrawals, and each partner s ending Capital balance. For example, given the preceding information and assuming that the Adams and Bell partnership had a 2003 profit of $140,000, the statement of partners capital for the year ended December 31, 2003, would be as shown in Exhibit 11-11. Note that the partnership agreement specifies that Adams is to receive 60% of the profits and Bell is to receive 40%.

**exhibit 11-11** Statement of Partners Capital

**Adams and Bell Partnership**
**Statement of Partners Capital**
**For the Year Ended December 31, 2003**

| | Dr. Adams | Dr. Bell | Total |
|---|---|---|---|
| Investments, January 1, 2003 | $ 90,000 | $ 90,000 | $180,000 |
| Add net income for 2003 | 84,000 | 56,000 | 140,000 |
| Subtotal | $174,000 | $146,000 | $320,000 |
| Less withdrawals during 2003 | (70,000) | (55,000) | (125,000) |
| Capital balances, December 31, 2003 | $104,000 | $ 91,000 | $195,000 |

## to summarize

The assets and liabilities of a proprietorship are accounted for in the same way as they are in a corporation, but equity is handled differently. Whereas the accounting for corporate equity may involve several accounts, the accounting for proprietorship equity requires only two accounts, Drawings and Capital. The drawings account is used for recording withdrawals of funds by the owner. It is closed to the capital account at year-end. The capital account is increased when capital is invested in the business and when profits are earned; it is decreased when cash or other assets are withdrawn from the business or when losses occur. The basic elements in accounting for the owners equity of a partnership are (1) accounting for investments by the partners, (2) recording withdrawals of assets by the partners, (3) closing the drawings accounts, and (4) preparing a statement of partners capital. Investments by owners are usually recorded at the fair market value and are credited to the owners capital balances. Owners withdrawals of cash, inventory, and other business assets are recorded in drawings accounts, which are closed to the capital accounts at year-

end. There is one capital and one drawings account for each partner. A statement of partners capital reconciles the beginning and ending capital balances by adding any profits and additional investments to the beginning capital balances and subtracting any losses and withdrawals.

## review of learning objectives

**1 Distinguish between debt and equity financing, and describe the advantages and disadvantages of organizing a business as a proprietorship or a partnership.** Borrowing money imposes a legal obligation to repay the amount borrowed, plus interest. Receiving investment funds does not obligate the company to repay investors. Investors stand to lose their investments if the company does poorly, but they also stand to share in the wealth if the company does well. Proprietorships are owned by one person; partnerships are owned by two or more persons or entities. Partnerships and proprietorships share three characteristics: (1) ease of formation, (2) limited life, and (3) unlimited liability.

**2 Describe the basic characteristics of a corporation and the nature of common and preferred stock.** A corporation is a business entity that is legally separate from its owners and is chartered by a state. It is independently taxed, and it can incur debts, conduct business, own property, and enter into contracts. Among the benefits of the corporate form of business are that ownership interests are easily transferred and that the liability of the owners is limited to the amount of their investment. Common stockholders are the true owners of a corporation. They have the right to vote in corporate matters and own all corporate assets that are left after the claims of others have been satisfied. Preferred stockholders are entitled to receive their full cash dividend payments before any dividends can be paid to common stockholders. Preferred stockholders are entitled to a fixed amount of the corporate assets, and that amount does not increase when the company is successful.

**3 Account for the issuance and repurchase of common and preferred stock.** Stock that is issued often has a par value associated with each share. This par value is a legal technicality and represents the minimum amount that must be invested. When stock is issued in exchange for a noncash item, the transaction is recorded at the market value of the noncash item. Repurchased stock is called treasury stock. When treasury stock is purchased by a corporation, it is accounted for at cost and deducted from total stockholders equity as a contra-equity account.

**4 Understand the factors that affect retained earnings, describe the factors determining whether a company can and should pay cash dividends, and account for cash dividends.** Retained earnings is increased by net income and is decreased by a net loss, by dividends, and by some treasury stock transactions. Corporations usually distribute cash dividends to their owners. The three important dates in accounting for cash dividends are the declaration date, the date of record, and the payment date. Dividends are not a liability until they are declared. If a company has common and preferred stock, the allocation of dividends between the two types of stock depends on the dividend preferences of the preferred stock. According to the incorporation laws in some states, the ability of a company to pay cash dividends can be restricted by the balance in Retained Earnings. In addition, private lending agreements sometimes constrain a company s ability to pay cash dividends. The dividend payout ratio, which is cash dividends divided by net income, reveals what percentage of a company s income it is paying out in dividends.

**5 Describe the purpose of reporting comprehensive income in the equity section of the balance sheet, and prepare a statement of stockholders equity.** The accumulated amount of comprehensive income is reported in the equity section of the balance sheet. Comprehensive income items result from changes in market values of certain assets and liabilities. Comprehensive income is not income in the traditional sense but instead represents unrealized gains and losses that are excluded from the income statement. The statement of stockholders equity summarizes the changes in each equity category during a year.

### expanded material

**6 Account for stock dividends and distinguish them from stock splits.** Stock dividends and stock splits involve dividing the ownership of the corporation into smaller pieces but giving shareholders proportionately more of these smaller pieces. Generally speaking, stock dividends are smaller than stock splits. A small stock dividend is one that is less than 25% and is accounted for by transferring the market value of the newly created shares out of Retained Earnings. With a large stock dividend, only the par value of the new shares is transferred. A stock split can be accounted for as a large stock dividend or by decreasing the par value of the shares.

**7 Explain prior-period adjustments and prepare a statement of retained earnings.** Prior-period adjustments are

adjustments to restate net income of prior periods. The most common prior-period adjustments stem from past accounting errors that have been discovered in the current period. Because past periods net income has already been closed to Retained Earnings, the corrections are made directly to the retained earnings account. Companies often include a statement of retained earnings with their financial statements. A statement of retained earnings reconciles the ending retained earnings balance with beginning retained earnings.

**8 Understand basic proprietorship and partnership accounting.** There are two owner s equity accounts in a proprietorship: a capital account and a drawings account. The capital account is increased by owner contributions and profits and decreased by owner withdrawals and losses. Events commonly accounted for in a partnership are investments by owners, withdrawals by partners, and allocation of partnership profits and losses. Investments and withdrawals by partners are treated in the same way as they are in a proprietorship. That is, investments increase the partners Capital balances, and withdrawals decrease the partners Capital balances. A statement of partners capital is usually prepared at year end. This statement reconciles the ending Capital balances with the beginning Capital balances by adding profits and additional investments and deducting losses and partner withdrawals.

## key terms and concepts

accumulated other comprehensive income 529
board of directors 517
cash dividend 524
common stock 518
contributed capital 520
convertible preferred stock 519
corporation 515
cumulative-dividend preference 527
current-dividend preference 526
date of record 525
declaration date 525
dividend payment date 525
dividend payout ratio 528
dividends 524
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statement of partners capital 538
statement of retained earnings 535
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stock split 534

## review problem

**Stockholders Equity**

Clarke Corporation was organized during 1973. At the end of 2003, the equity section of the balance sheet was:

| | |
|---|---|
| Contributed capital: | |
| Preferred stock (8%, $30 par, 6,000 shares authorized, 5,000 shares issued and outstanding) | $150,000 |
| Common stock ($5 par, 50,000 shares authorized, 20,000 shares issued, 17,000 shares outstanding) | 100,000 |
| Paid-in capital in excess of par, common stock | 80,000 |
| Total contributed capital | $330,000 |
| Retained earnings | 140,000 |
| Total contributed capital plus retained earnings | $470,000 |
| Less treasury stock (3,000 shares of common stock at cost, $10 per share) | (30,000) |
| Total stockholders equity | $440,000 |

During 2003, the following stockholders equity transactions occurred in chronological sequence:

a. Issued 800 shares of common stock at $11 per share.
b. Reissued 1,200 shares of treasury stock at $12 per share.
c. Issued 300 shares of preferred stock at $33 per share.
d. Reissued 400 shares of treasury stock at $9 per share.
e. Declared and paid a dividend large enough to meet the current-dividend preference on the preferred stock and to pay the common stockholders $1.50 per share.
f. Net income for 2003 was $70,000, which included $400,000 of revenues and $330,000 of expenses.
g. Closed the dividends accounts for 2003.

*Required:*

1. Journalize the transactions.
2. Set up T-accounts with beginning balances and post the journal entries to the T-accounts, adding any necessary new accounts. (Assume a beginning balance of $20,000 for the cash account.)
3. Prepare the stockholders equity section of the balance sheet as of December 31, 2003.

**Solution**

**1. Journalize the Transactions**

| | | | | |
|---|---|---|---|---|
| a. | Cash | | 8,800 | |
| | Common Stock | | | 4,000 |
| | Paid-In Capital in Excess of Par, Common Stock | | | 4,800 |
| | *Issued 800 shares of common stock at $11 per share.* | | | |

Cash received is $11 × 800 shares; common stock is par value times the number of shares ($5 × 800); paid-in capital is the excess.

| | | | | |
|---|---|---|---|---|
| b. | Cash | | 14,400 | |
| | Treasury Stock | | | 12,000 |
| | Paid-In Capital, Treasury Stock | | | 2,400 |
| | *Reissued 1,200 shares of treasury stock at $12 per share.* | | | |

Cash is $12 × 1,200 shares; treasury stock is the cost times the number of shares sold ($10 × 1,200 shares); paid-in capital is the excess.

| | | | | |
|---|---|---|---|---|
| c. | Cash | | 9,900 | |
| | Preferred Stock | | | 9,000 |
| | Paid-In Capital in Excess of Par, Preferred Stock | | | 900 |
| | *Issued 300 shares of preferred stock at $33 per share.* | | | |

Cash is $33 × 300 shares; preferred stock is par value times the number of shares issued ($30 × 300); paid-in capital is the excess.

| | | | | |
|---|---|---|---|---|
| d. | Cash | | 3,600 | |
| | Paid-In Capital, Treasury Stock | | 400 | |
| | Treasury Stock | | | 4,000 |
| | *Reissued 400 shares of treasury stock at $9 per share.* | | | |

Cash is $9 × 400 shares; treasury stock is the cost times the number of shares sold ($10 × 400); paid-in capital is decreased for the difference. If no Paid-In Capital, Treasury Stock balance had existed, Retained Earnings would have been debited.

| | | | | |
|---|---|---|---|---|
| e. | Dividends, Preferred Stock | | 12,720 | |
| | Dividends, Common Stock | | 29,100 | |
| | Cash | | | 41,820 |
| | *Declared and paid cash dividend.* | | | |

Calculations:

| Preferred Stock | Number of Shares | Par-Value Amount |
|---|---|---|
| Original balance | 5,000 | $150,000 |
| Entry (c) | 300 | 9,000 |
| Total | 5,300 | $159,000 |
| | | × 0.08 |
| | | $ 12,720 |

| Common Stock | Number of Shares |
|---|---|
| Original balance (excludes treasury stock) | 17,000 |
| Entry (a) | 800 |
| Entry (b) | 1,200 |
| Entry (d) | 400 |
| Total | 19,400 shares |
| | × $1.50 |
| | $29,100 |
| Total preferred stock dividend | $12,720 |
| Total common stock dividend | 29,100 |
| Total dividend | $41,820 |

| | | | | |
|---|---|---|---|---|
| f. | Revenues (individual revenue accounts) | | 400,000 | |
| | Expenses (individual expense accounts) | | | 330,000 |
| | Retained Earnings | | | 70,000 |
| | *To close net income to Retained Earnings.* | | | |
| g. | Retained Earnings | | 41,820 | |
| | Dividends, Preferred Stock | | | 12,720 |
| | Dividends, Common Stock | | | 29,100 |
| | *To close the dividends accounts for 2003.* | | | |

## 2. Set Up T-Accounts and Post to the Accounts

**Cash**

| | | | |
|---|---|---|---|
| Beg. Bal. | 20,000 | (e) | 41,820 |
| (a) | 8,800 | | |
| (b) | 14,400 | | |
| (c) | 9,900 | | |
| (d) | 3,600 | | |
| Bal. | 14,880 | | |

**Preferred Stock**

| | | | |
|---|---|---|---|
| | | Beg. Bal. | 150,000 |
| | | (c) | 9,000 |
| | | Bal. | 159,000 |

**Paid-In Capital in Excess of Par, Preferred Stock**

| | | | |
|---|---|---|---|
| | | (c) | 900 |
| | | Bal. | 900 |

**Common Stock**

| | | | |
|---|---|---|---|
| | | Beg. Bal. | 100,000 |
| | | (a) | 4,000 |
| | | Bal. | 104,000 |

**Paid-In Capital in Excess of Par, Common Stock**

| | | | |
|---|---|---|---|
| | | Beg. Bal. | 80,000 |
| | | (a) | 4,800 |
| | | Bal. | 84,800 |

**Treasury Stock**

| | | | |
|---|---|---|---|
| Beg. Bal. | 30,000 | (b) | 12,000 |
| | | (d) | 4,000 |
| Bal. | 14,000 | | |

**Paid-In Capital, Treasury Stock**

| | | | |
|---|---|---|---|
| (d) | 400 | (b) | 2,400 |
| | | Bal. | 2,000 |

**Retained Earnings**

| | | | |
|---|---|---|---|
| | | Beg. Bal. | 140,000 |
| (g) | 41,820 | (f) | 70,000 |
| | | Bal. | 168,180 |

**Dividends, Preferred Stock**

| | | | |
|---|---|---|---|
| (e) | 12,720 | (g) | 12,720 |
| Bal. | 0 | | |

**Dividends, Common Stock**

| | | | |
|---|---|---|---|
| (e) | 29,100 | (g) | 29,100 |
| Bal. | 0 | | |

**Revenues**

| | | | |
|---|---|---|---|
| | | Beg. Bal. | 400,000 |
| (f) | 400,000 | | |
| | | Bal. | 0 |

**Expenses**

| | | | |
|---|---|---|---|
| Beg. Bal. | 330,000 | (f) | 330,000 |
| Bal. | 0 | | |

3. Prepare Stockholders Equity Section of the Balance Sheet

**Clarke Corporation**
**Partial Balance Sheet**
**December 31, 2003**

**Stockholders Equity**

| | |
|---|---|
| Contributed Capital: | |
| Preferred stock (8%, $30 par, 6,000 shares authorized, 5,300 shares issued and outstanding) | $159,000 |
| Common stock ($5 par, 50,000 shares authorized, 20,800 shares issued, 19,400 outstanding) | 104,000 |
| Paid-in capital in excess of par, preferred stock | 900 |
| Paid-in capital in excess of par, common stock | 84,800 |
| Paid-in capital, treasury stock | 2,000 |
| Total contributed capital | $350,700 |
| Retained earnings | 168,180 |
| Total contributed capital plus retained earnings | $518,880 |
| Less treasury stock (1,400 shares of common stock at cost, $10 per share) | (14,000) |
| Total stockholders equity | $504,880 |

| Transaction | Common Stock Issued | Common Stock Authorized | Treasury Stock |
|---|---|---|---|
| Number of shares originally issued | 20,000 | 50,000 | 3,000 |
| Entry (a) | 800 | | |
| Entry (b) | | | (1,200) |
| Entry (d) | | | (400) |
| Total | 20,800 | 50,000 | 1,400 |

## discussion questions

1. What are the primary differences between debt financing and equity financing?
2. What are the major differences between a partnership and a corporation?
3. How is a proprietorship or partnership established?
4. Does the death of a partner legally terminate a partnership? If so, does it mean that the partnership must cease operating?

5. Are partners legally liable for the actions of other partners? Explain.
6. In which type of business entity do all owners have limited liability?
7. In what way are corporate profits subject to double taxation?
8. How do common and preferred stock differ?
9. What is the purpose of having a par value for stock?
10. Why would a company repurchase its own shares of stock that it had previously issued?
11. Is treasury stock an asset? If not, why not?
12. How is treasury stock usually accounted for?
13. In what way does the stockholders equity section of a balance sheet identify the sources of the assets?
14. What factors affect the retained earnings balance of a corporation?
15. Is it possible for a firm to have a large Retained Earnings balance and no cash? Explain.
16. When is a company legally barred from paying cash dividends?
17. Why should a potential common stockholder carefully examine the dividend preferences of a company s preferred stock?
18. The dividend payout ratio for Deedle Company is 40%. What does this mean?
19. What is accumulated other comprehensive income? Why was this concept adopted by accounting standard-setters?
20. Give two examples of other equity items (items that bypass the income statement and go directly to the equity section of the balance sheet).

## expanded material

21. Does a stock dividend have value to stockholders? Explain.
22. What is the difference between large and small stock dividends?
23. Why are prior-period adjustments entered directly into Retained Earnings instead of being reflected on the income statement?
24. Is the payment of salary to a proprietor an expense that would be deducted on a proprietorship s income statement? Explain.
25. In a corporation, contributions by owners and accumulated earnings of the business are separated into contributed capital and retained earnings accounts. Are earnings and contributions separated into different accounts in a partnership? Explain.

# discussion cases

## CASE 11-1

### DOES STOCKHOLDERS EQUITY TELL THE REAL STORY?

Last year, Shades International (a hypothetical company) invented the famous Shades Sunglasses that are widely popular around the world and especially in Japan and the Far East. Citizens of these countries love the new-age sunglasses and are buying them as fast as they can. Shades International owns the patent but contracts out to other companies to manufacture the glasses. Shades International also leases its research and development facility, the only building it occupies. Royalties from the glasses exceeded $10 million last year and are expected to increase dramatically this year. Selected data (in millions of dollars) from Shades International s financial statements are as follows:

| | |
|---|---|
| Patent | $0.3 |
| Other assets | 0.9 |
| Total liabilities | 4.5 |
| Total stockholders equity | (3.3) |

In the next two months, Shades International will be offering stock for sale to the public. Your friend is encouraging you to buy some of the stock. You are leery about the negative stockholders equity balance. Is Shades International worth even considering as a possible investment?

## CASE 11-2

### TO PAY OR NOT TO PAY DIVIDENDS

Assume Lenny Company manufactures specialized computer peripheral parts such as speakers and modems. It is a new company that has been in operation for just two years. During those two years, Lenny Company s stock price has increased over 400%. Lenny Company does not

pay dividends nor does the company plan to do so in the future. However, the company s stock seems to be heavily traded. Why do you think there is so much interest in buying Lenny Company s stock if stockholders do not receive dividends?

## exercises

### EXERCISE 11-1

### ISSUANCE OF STOCK

Brockbank Corporation was organized on July 15, 2003. Record the journal entries for Brockbank to account for the following:

a. The state authorized 30,000 shares of 7% preferred stock ($20 par) and 100,000 shares of no-par common stock.
b. The company gave 6,000 shares of common stock to its attorney in return for her help in incorporating the business. Fees for this work are normally about $18,000. (Note: The debit is to Legal Expense.)
c. Brockbank Corporation gave 15,000 shares of common stock to an individual who contributed a building worth $50,000.
d. Brockbank Corporation issued 5,000 shares of preferred stock at $25 per share.
e. Peter Brockbank paid $70,000 cash for 30,000 shares of common stock.
f. Another individual donated a $15,000 machine and received 4,000 shares of common stock.
g. The attorney sold all her shares to her brother-in-law for $18,000.

### EXERCISE 11-2

### NO-PAR STOCK TRANSACTIONS

Parker Maintenance Corporation was organized in early 2003 with 40,000 shares of no-par common stock authorized. During 2003, the following transactions occurred:

a. Issued 17,000 shares of stock at $36 per share.
b. Issued another 2,400 shares of stock at $38 per share.
c. Issued 2,000 shares for a building appraised at $40,000.
d. Declared dividends of $1 per share.
e. Earned net income of $99,000 for the year, including $200,000 of revenues and $101,000 of expenses.
f. Closed the dividends accounts.

Given this information:

1. Journalize the transactions.
2. Present the stockholders equity section of the balance sheet as it would appear on December 31, 2003.

### EXERCISE 11-3

### TREASURY STOCK TRANSACTIONS

Provide the necessary journal entries to record the following:

a. Fayette Corporation was granted a charter authorizing the issuance of 100,000 shares of $16 par-value common stock.
b. The company issued 40,000 shares of common stock at $20 per share.
c. The company reacquired 2,000 shares of its own stock at $22 per share, to be held in treasury.
d. Another 2,000 shares of stock were reacquired at $24 per share.
e. Of the shares reacquired in (c), 800 were reissued for $26 per share.
f. Of the shares reacquired in (d), 1,400 were reissued for $18 per share.
g. Given the preceding transactions, what is the balance in the treasury stock account?

## EXERCISE 11-4 STOCK ISSUANCE AND CASH DIVIDENDS

Stillwater Corporation was organized in January 2003. The state authorized 100,000 shares of no-par common stock and 50,000 shares of 10%, $20 par, preferred stock. Record the following transactions that occurred in 2003:

a. Issued 10,000 shares of common stock at $30 per share.
b. Issued 2,000 shares of preferred stock for a building appraised at $60,000.
c. Declared a cash dividend sufficient to meet the current-dividend preference on preferred stock and pay common shareholders $2 per share.

## EXERCISE 11-5 STOCK ISSUANCE, TREASURY STOCK, AND DIVIDENDS

On January 1, 2003, Abbott Corporation was granted a charter authorizing the following capital stock: common stock, $20 par, 100,000 shares; preferred stock, $10 par, 6%, 30,000 shares. Record the following 2003 transactions:

a. Issued 80,000 shares of common stock at $30 per share.
b. Issued 14,000 shares of preferred stock at $12 per share.
c. Bought back 5,000 shares of common stock at $40 per share.
d. Reissued 500 shares of treasury stock at $25 per share.
e. Declared cash dividends of $38,600 to be allocated between common and preferred stockholders. (The preferred stock, which has a current-dividend preference, is noncumulative.)
f. Paid dividends of $38,600.

## EXERCISE 11-6 STOCK ISSUANCE, TREASURY STOCK, AND DIVIDENDS

On January 1, 2003, Snow Company was authorized to issue 100,000 shares of common stock, par value $10 per share and 10,000 shares of 8% preferred stock, par value $20 per share. Record the following transactions for 2003:

a. Issued 70,000 shares of common stock at $25 per share.
b. Issued 8,000 shares of preferred stock at $30 per share.
c. Reacquired 5,000 shares of common stock at $20 per share.
d. Reissued 2,000 shares of treasury stock for $46,000.
e. Declared a cash dividend sufficient to meet the current-dividend preference on preferred stock and pay common shareholders $1 per share.

## EXERCISE 11-7 STOCK TRANSACTIONS AND DIVIDENDS

Marion Corporation was organized in January 2003. The state authorized 200,000 shares of no-par common stock and 100,000 shares of 10%, $10 par, preferred stock. Record the following transactions that occurred in 2003:

a. Issued 20,000 shares of common stock at $20 per share.
b. Issued 8,000 shares of preferred stock for a piece of land appraised at $90,000.
c. Declared a cash dividend sufficient to meet the current-dividend preference on preferred stock and paid common shareholders $1 per share.
d. How would your answer to (c) change if the dividend declared were not sufficient to meet the current-dividend preference on preferred stock?

## EXERCISE 11-8 DIVIDEND CALCULATIONS

On January 1, 2003, Oldroyd Corporation had 130,000 shares of common stock issued and outstanding. During 2003, the following transactions occurred (in chronological order):

a. Oldroyd issued 10,000 new shares of common stock.
b. The company reacquired 2,000 shares of stock for use in its employee stock option plan.
c. At the end of the option period, 1,200 shares of treasury stock had been purchased by corporate officials.

Given this information, compute the following:

1. After the foregoing three transactions have occurred, what amount of dividends must Oldroyd Corporation declare in order to pay 50 cents per share? To pay $1 per share?

2. What is the dividend per share if $236,640 is paid?
3. If all 2,000 treasury shares had been purchased by corporate officials through the stock option plan, what would the dividends per share have been, again assuming $236,640 in dividends were paid? (Round to the nearest cent.)

## EXERCISE 11-9 DIVIDEND CALCULATIONS

Stewart Corporation has the following stock outstanding:

| | |
|---|---|
| Preferred stock (5%, $20 par value, 20,000 shares) | $400,000 |
| Common stock ($5 par value, 80,000 shares) | 400,000 |

For the two independent cases that follow, compute the amount of dividends that would be paid to preferred and common shareholders. Assume that total dividends paid are $86,000. No dividends have been paid for the past two years.

Case A, Preferred is noncumulative.
Case B, Preferred is cumulative.

## EXERCISE 11-10 STOCK ISSUANCE, TREASURY STOCK, AND DIVIDENDS

During 2003, Doxey Corporation had the following transactions and related events:

Jan. 15 Issued 6,500 shares of common stock at par ($16 per share), bringing the total number of shares outstanding to 121,300.
Feb. 6 Declared a 50-cent-per-share dividend on common stock for stockholders of record on March 6.
Mar. 6 Date of record.
8 Pedro Garcia, a prominent banker, purchased 20,000 shares of Doxey Corporation common stock from the company for $346,000.
Apr. 6 Paid dividends declared on February 6.
June 19 Reacquired 800 shares of common stock as treasury stock at a total cost of $9,350.
Sept. 6 Declared dividends of 55 cents per share to be paid to common stockholders of record on October 15, 2003.
Oct. 6 The Dow Jones Industrial Average plummeted 300 points, and Doxey s stock price fell $3 per share.
15 Date of record.
Nov. 16 Paid dividends declared on September 6.
Dec. 15 Declared and paid a 6% cash dividend on 18,000 outstanding shares of preferred stock (par value $32).

Given this information:

1. Prepare the journal entries for these transactions.
2. What is the total amount of dividends paid to common and preferred stockholders during 2003?

## EXERCISE 11-11 DIVIDEND PAYOUT RATIO

The following numbers are for three different companies:

| | A | B | C |
|---|---|---|---|
| Total assets | $1,000 | $2,500 | $2,000 |
| Cash dividends | 50 | 200 | 400 |
| Total liabilities | 600 | 800 | 1,400 |
| Net income | 200 | 500 | 500 |

For each company, compute the dividend payout ratio.

## EXERCISE 11-12 ANALYSIS OF STOCKHOLDERS EQUITY

The stockholders equity section of Kay Corporation at the end of the current year showed:

| | |
|---|---|
| Preferred stock (6%, $40 par, 10,000 shares authorized, 6,000 shares issued and outstanding) | $ ? |
| Common stock ($6 par, 80,000 shares authorized, 53,000 issued, 52,650 shares outstanding) | 318,000 |
| Paid-in capital in excess of par, preferred stock | ? |
| Paid-in capital in excess of par, common stock | 129,000 |
| Retained earnings | 86,000 |
| Less treasury stock (350 shares at cost) | (2,000) |
| Total stockholders equity | $ ? |

1. What is the dollar amount to be reported for preferred stock?
2. What is the average price for which common stock was issued? (Round to the nearest cent.)
3. If preferred stock was issued at an average price of $43 per share, what amount should appear in the paid-in capital in excess of par, preferred stock account?
4. What is the average cost per share of treasury stock? (Round to the nearest cent.)
5. Assuming that the preferred stock was issued for an average price of $43 per share, what is total stockholders equity?
6. If net income for the year were $67,000 and if only dividends on preferred stock were paid, by how much would retained earnings increase?

## EXERCISE 11-13 PREPARING THE STOCKHOLDERS EQUITY SECTION

The following account balances, before any closing entries, appear on the books of Spring Company as of December 31, 2003:

| | |
|---|---|
| Retained Earnings (balance at Jan. 1, 2003) | $240,000 |
| Dividends, Preferred Stock | 15,000 |
| Dividends, Common Stock | 35,000 |
| Common Stock ($5 par, 100,000 shares authorized, 70,000 issued and outstanding) | 350,000 |
| Paid-In Capital in Excess of Par, Common Stock | 350,000 |
| Preferred Stock (6%, $50 par, 50,000 shares authorized, 5,000 issued and outstanding) | 250,000 |
| Paid-In Capital in Excess of Par, Preferred Stock | 25,000 |

Based on these account balances, and assuming net income for 2003 of $80,000, prepare the stockholders equity section of the December 31, 2003, balance sheet for Spring Company.

## EXERCISE 11-14 COMPREHENSIVE INCOME

The following information relates to Lily Company:

a. Lily Company s net income for the year was $10,000.
b. Lily Company has an investment portfolio for long-term investment purposes. That portfolio increased in value by $2,000 during the year.
c. Lily Company has several foreign subsidiaries. The currencies in the countries where those subsidiaries are located declined in value (relative to the U.S. dollar) during the year. Accordingly, the computed value of the equity of those subsidiaries, in U.S. dollars, decreased by $3,000.

Compute Lily s comprehensive income for the year.

## EXERCISE 11-15 OTHER EQUITY ITEMS

Red Rider Company has the following stockholders equity section on its balance sheet as of December 31, 2003 and 2002.

| Red Rider Company (in millions) | 2003 | 2002 |
|---|---|---|
| **Stockholders Equity** | | |
| Preferred stock | $ 2.0 | $ 2.0 |
| Common stock | 32.0 | 32.0 |
| Paid-in capital various | 12.4 | 11.2 |
| Retained earnings | 24.5 | 24.6 |
| Subtotal | $ 70.9 | $69.8 |
| Accumulated foreign currency translation adjustments | 5.2 | 4.5 |
| Net unrealized gains on investments in certain debt and equity securities | 25.6 | 20.0 |
| Total stockholders equity | $101.7 | $94.3 |

Based on this stockholders equity section, answer the following questions:

1. At the end of 2003, what was the total amount of equity financing provided by Red Rider s investors?
2. At the end of 2003, how much of Red Rider s earnings had not been distributed to investors?
3. What is the total amount of other equity items contained in the 2003 stockholders equity section?
4. What contributed most to the increased equity from 2002 to 2003?

expanded material

## EXERCISE 11-16 STOCK DIVIDENDS AND STOCK SPLITS

The stockholders equity section of Ardvark Corporation s December 31, 2002, balance sheet included the following items:

| | |
|---|---|
| Common stock ($20 par, 250,000 shares authorized, 50,000 shares issued and outstanding) | $1,000,000 |
| Paid-in capital in excess of par, common stock | 1,500,000 |
| Retained earnings | 2,000,000 |

Record the following transactions for 2003:

a. On March 1, Ardvark declared and issued a 25% stock dividend on common stock. The market price of the stock was $40 per share on that date.
b. On June 30, a 4-for-1 stock split was declared.
c. On September 15, a 10% stock dividend on common stock was declared and distributed. The market price of the stock was $30 per share on the dividend date.

## EXERCISE 11-17 STOCK DIVIDENDS

Allred Company has issued 90,000 shares of common stock with a par value of $5. Of the shares issued, 80,000 shares are outstanding. Allred s board of directors has decided to issue a stock dividend. The current market price of the stock is $30 per share. Provide journal entries to record the issuance of the dividend under each of the following independent circumstances:

1. The dividend is a 20% stock dividend.
2. The dividend is a 30% stock dividend.

## EXERCISE 11-18 STOCK DIVIDENDS

On July 1, 2003, Sanford Corporation s balance sheet reported the following account balances in the stockholders equity section:

| | |
|---|---|
| Common stock, $5 par | $150,000 |
| Paid-in capital in excess of par, common stock | 20,000 |
| Retained earnings | 180,000 |
| Total stockholders equity | $350,000 |

On August 31, 2003, Sanford s board of directors declared and issued a 10% stock dividend. The market value on August 31 is $12 per share.

1. Compare the book value per share before and after the issuance of the stock dividend.
2. Compute the new balance for all stockholders equity accounts after the stock dividend.

## EXERCISE 11-19 STOCKHOLDERS EQUITY TRANSACTIONS

On December 31, 2002, White Lighting Corporation s stockholders equity section of the balance sheet showed the following:

| | |
|---|---|
| Common stock ($10 par, 50,000 shares authorized, 25,000 issued and 17,000 outstanding) | $250,000 |
| Paid-in capital in excess of par, common stock | 375,000 |
| Retained earnings | 450,000 |
| Treasury stock (8,000 shares, at cost) | (90,000) |
| Total stockholders equity | $985,000 |

During 2003, the following transactions occurred:

a. On March 1, 2003, White Lighting purchased 5,000 shares of its stock at $20 per share.
b. On April 15, 2003, White Lighting reissued the 5,000 shares of its stock purchased in (a); the market price on that day was $30 per share.
c. On June 10, 2003, White Lighting declared and paid a 10% stock dividend. Market price of the stock was $32 per share.
d. On June 30, 2003, White Lighting declared a cash dividend of 50 cents per share. The dividend was paid on July 30. The record date was July 15.
e. On October 1, 2003, White Lighting issued 5,000 shares of new stock for $40 per share.

Prepare journal entries to record each of the above transactions.

## EXERCISE 11-20 STATEMENT OF RETAINED EARNINGS

The stockholders equity section of Summer Corporation s balance sheet shows the following as of the end of 2003:

| | |
|---|---|
| Preferred stock (5%, $30 par, 10,000 shares authorized, 5,000 shares issued and outstanding) | $ ? |
| Common stock ($12 par, 50,000 shares authorized, 28,000 issued, 27,500 outstanding) | 336,000 |
| Paid-in capital in excess of par, preferred stock | ? |
| Paid-in capital in excess of par, common stock | 424,000 |
| Retained earnings | 78,000 |
| Treasury stock (purchased at $14) | ? |
| Total stockholders equity | $ ? |

Prepare a statement of retained earnings for the year ended December 31, 2003. Assume the following additional facts:

a. Retained earnings as of December 31, 2002, was $25,500.
b. Net income as of 2003 was $72,000.
c. Dividends equal to the current-dividend preference on preferred stock were declared and issued.

d. A prior-period adjustment was made to retained earnings to correct an overstatement of 2002 net income in the amount of $12,000.
e. Common stock was sold for $12.

## EXERCISE 11-21 ACCOUNTING FOR A PROPRIETORSHIP

At the beginning of 2003, Marena Sanchez decided to go into business making and selling decorative artificial plants. During the year ended December 31, 2003, Sanchez had the following transactions:

a. Withdrew $20,000 from a personal savings account and deposited that amount in a new checking account to be used solely for the business.
b. Paid cash to purchase $12,000 of materials needed to make plants.
c. Invested another $24,000 in the business.
d. Sold 450 plants during the year at $60 each for cash.
e. Incurred and paid operating expenses for the year of $10,500.
f. At the end of the year, $4,000 of materials remained on hand. The cost of materials used was transferred to a cost of goods sold account.
g. Withdrew $5,000 for personal use.

Prepare journal entries to record the transactions, and prepare a statement of owner s capital for the year.

## EXERCISE 11-22 PARTNERSHIP ACCOUNTING

Jill Emerson owned a pet shop. On August 1, 2003, Emerson accepted Allan Jacobs as a partner. At that time, Emerson s capital account showed a balance of $135,000. Jacobs contributed $90,000 cash for a 40% share in both capital and earnings. During the rest of 2003, the following transactions took place:

a. Emerson withdrew $12,000 and Jacobs withdrew $4,000.
b. Emerson invested another $4,500 cash, and Jacobs contributed a truck valued at $6,000.
c. Net income from August 1, 2003, through December 31, 2003, was $26,700, which included $66,700 of revenues and $40,000 of expenses.

Given this information:

1. Prepare the journal entries (including closing entries) for the transactions.
2. Prepare a statement of partners capital for the 5 months ending December 31, 2003, for the Emerson and Jacobs partnership.

## EXERCISE 11-23 STARTING A PARTNERSHIP

On July 1, 2003, Dr. Wright and Dr. O Flaherty decided to form a partnership by combining all the assets and liabilities of their respective dental practices. The partnership will have a new and separate set of books. Dr. Wright s balance sheet at June 30, 2003, was as follows:

| | | |
|---|---|---|
| **Assets** | | |
| Cash | | $ 27,000 |
| Accounts receivable | $116,000 | |
| Less allowance for uncollectible accounts | 6,600 | 109,400 |
| Dental equipment | $ 52,900 | |
| Less accumulated depreciation | 24,200 | 28,700 |
| Building | $169,400 | |
| Less accumulated depreciation | 13,500 | 155,900 |
| Total assets | | $321,000 |
| **Liabilities and Owner s Equity** | | |
| Accounts payable | | $ 22,700 |
| Mortgage payable | | 150,000 |
| Dr. Wright, capital | | 148,300 |
| Total liabilities and owner s equity | | $321,000 |

The partners agreed that $5,600 of the accounts receivable were uncollectible and that $2,400 was a reasonable allowance for the uncollectibility of the remaining receivables. They also agreed that the dental equipment and the building should be recorded at their respective fair market values of $46,000 and $182,000.

Prepare the journal entry to record Dr. Wright s investment in the partnership.

# problems

## PROBLEM 11-1 STOCK TRANSACTIONS AND ANALYSIS

The following selected items and amounts were taken from the balance sheet of Quale Company as of December 31, 2003:

| | |
|---|---|
| Cash | $ 93,000 |
| Property, plant, and equipment | 850,000 |
| Accumulated depreciation | 150,000 |
| Liabilities | 50,000 |
| Preferred stock (7%, $100 par, noncumulative, 10,000 shares authorized, 5,000 shares issued and outstanding) | 500,000 |
| Common stock ($10 par, 100,000 shares authorized, 80,000 shares issued and outstanding) | 800,000 |
| Paid-in capital in excess of par, preferred stock | 1,000 |
| Paid-in capital in excess of par, common stock | 125,000 |
| Paid-in capital, treasury stock | 1,000 |
| Retained earnings | 310,000 |

*Required:* For each of parts (1) to (5), (a) prepare the necessary journal entry (or entries) to record each transaction, and (b) calculate the amount that would appear on the December 31, 2003, balance sheet as a consequence of this transaction only for the account given. (Note: In your answer to each part of this problem, consider this to be the only transaction that took place during 2003.)

1. Quale Company issued 200 shares of common stock in exchange for cash of $4,000.
   a. Entry
   b. Paid-In Capital in Excess of Par, Common Stock
2. The company issued 200 shares of preferred stock at a price of $102 per share.
   a. Entry
   b. Paid-In Capital in Excess of Par, Preferred Stock
3. The company issued 500 shares of common stock in exchange for a building. The common stock is not actively traded, but the building was recently appraised at $11,000.
   a. Entry
   b. Property, Plant, and Equipment
4. The company reacquired 1,000 shares of common stock from a stockholder for $23,000 and subsequently reissued the shares to a different investor for $21,500. (Note: Make two entries.)
   a. Entries
   b. Paid-In Capital, Treasury Stock
5. The board of directors declared dividends of $75,000. This amount includes the current-year dividend preference on preferred stock, with the remainder to be paid to common shareholders.
   a. Entry
   b. Retained Earnings

## PROBLEM 11-2 STOCK TRANSACTIONS AND THE STOCKHOLDERS EQUITY SECTION

The following is West Valley Company s stockholders equity section of the balance sheet on December 31, 2002:

| | |
|---|---|
| Preferred stock (8%, $60 par, noncumulative, 16,000 shares authorized, 8,000 shares issued and outstanding) | $480,000 |
| Common stock ($10 par, 120,000 shares authorized, 80,000 shares issued and outstanding) | 800,000 |
| Paid-in capital in excess of par, preferred stock | 130,000 |
| Paid-in capital in excess of par, common stock | 252,000 |
| Retained earnings | 330,000 |

*Required:*

1. Journalize the following 2003 transactions:
   a. Issued 2,000 preferred shares at $70 per share.
   b. Reacquired 1,000 common shares for the treasury at $13 per share.
   c. Declared and paid a $2-per-share dividend on common stock in addition to paying the required preferred dividends. (Note: Debit Retained Earnings directly.)
   d. Reissued 600 treasury shares at $14 per share.
   e. Reissued the remaining treasury shares at $12 per share.
   f. Earnings for the year were $92,000, including $200,000 of revenues and $108,000 of expenses.
2. Prepare the stockholders equity section of the balance sheet for the company at December 31, 2003.

## PROBLEM 11-3

### RECORDING STOCKHOLDERS EQUITY TRANSACTIONS

Zina Corporation was organized during 2002. At the end of 2002, the stockholders equity section of the balance sheet appeared as follows:

| | |
|---|---|
| *Contributed capital:* | |
| Preferred stock (8%, $40 par, 10,000 shares authorized, 5,000 shares issued and outstanding) | $200,000 |
| Common stock ($20 par, 30,000 shares authorized, 12,000 issued, 10,000 outstanding) | 240,000 |
| Paid-in capital in excess of par, preferred stock | 50,000 |
| Total contributed capital | $490,000 |
| Retained earnings | 110,000 |
| Total contributed capital plus retained earnings | $600,000 |
| Less treasury stock (2,000 shares at cost of $25 per share) | (50,000) |
| Total stockholders equity | $550,000 |

During 2003, the following transactions occurred in the order given:

a. Issued 1,000 shares of common stock at $24 per share.
b. Reissued 1,000 shares of treasury stock at $27 per share.
c. Reissued 500 shares of treasury stock at $20 per share.

*Required:* Record the transactions.

## PROBLEM 11-4

### STOCK TRANSACTIONS AND STOCKHOLDERS EQUITY SECTION

The balance sheet for Lakeland Corporation as of December 31, 2002, is as follows:

| | | |
|---|---|---|
| Assets | | $750,000 |
| Liabilities | | $410,000 |
| *Stockholders equity:* | | |
| Preferred stock, convertible (5%, $20 par) | $ 50,000 | |
| Common stock ($10 par) | 150,000 | |
| Paid-in capital in excess of par, common stock | 30,000 | |
| Retained earnings | 116,000 | |
| | $346,000 | |
| Less treasury stock, common (500 shares at cost) | (6,000) | 340,000 |
| Total liabilities and stockholders equity | | $750,000 |

During 2003, the following transactions were completed in the order given:

a. The company reacquired 750 shares of outstanding common stock at $7 per share.
b. The company reacquired 150 shares of common stock in settlement of an account receivable of $1,500.
c. Semiannual cash dividends of 75 cents per share on common stock and 50 cents per share on preferred stock were declared and paid.
d. Each share of preferred stock is convertible into three shares of common stock. Five hundred shares of preferred stock were converted into common stock. (HINT: Shares are converted at par values, and any excess reduces Retained Earnings.)
e. The 900 shares of common treasury stock acquired during 2003 were sold at $13. The remaining treasury shares were exchanged for a machine with a fair market value of $6,300.
f. The company issued 3,000 shares of common stock in exchange for land appraised at $39,000.
g. Semiannual cash dividends of 75 cents per share on common stock and 50 cents per share on preferred stock were declared and paid.
h. Closed net income of $35,000 to Retained Earnings, which included $135,000 of revenues and $100,000 of expenses.
i. Closed dividends accounts to Retained Earnings.

*Required:*

1. Give the necessary journal entries to record the transactions listed.
2. Prepare the stockholders equity section of the balance sheet as of December 31, 2003.

## PROBLEM 11-5 STOCKHOLDERS EQUITY, DIVIDENDS, AND TREASURY STOCK

The stockholders equity section of Nielsen Corporation s December 31, 2002, balance sheet is as follows:

| | |
|---|---|
| *Stockholders equity:* | |
| Preferred stock (10%, $50 par, 10,000 shares authorized, 1,000 shares issued and outstanding) | $ 50,000 |
| Common stock ($15 par, 100,000 shares authorized, 5,000 shares issued and outstanding) | 75,000 |
| Paid-in capital in excess of par, preferred stock | 2,000 |
| Paid-in capital in excess of par, common stock | 25,000 |
| Total contributed capital | $152,000 |
| Retained earnings | 102,000 |
| Total stockholders equity | $254,000 |

During 2003, Nielsen Corporation had the following transactions affecting stockholders equity:

Jan. 20 Paid a cash dividend of $2 per share on common stock. The dividend was declared on December 15, 2002.
Aug. 15 Reacquired 1,000 shares of common stock at $20 per share.
Sept. 30 Reissued 500 shares of treasury stock at $21 per share.
Oct. 15 Declared and paid cash dividends of $3 per share on the common stock.
Nov. 1 Reissued 200 shares of treasury stock at $18 per share.
Dec. 15 Declared and paid the 10% preferred cash dividend.
31 Closed net income of $40,000 to Retained Earnings. (Revenues were $260,000; expenses were $220,000.) Also closed the dividends accounts to Retained Earnings.

*Required:*

1. Journalize the transactions.
2. Prepare the stockholders equity section of Nielsen Corporation s December 31, 2003, balance sheet.
3. **Interpretive Question:** What is the effect on earnings per share when a company purchases treasury stock?

## PROBLEM 11-6 DIVIDEND CALCULATIONS

Salty Corporation was organized in January 2000 and issued shares of preferred and common stock as shown. As of December 31, 2003, there have been no changes in outstanding stock.

| | |
|---|---|
| Preferred stock (8%, $10 par, 20,000 shares issued and outstanding) | $200,000 |
| Common stock ($40 par, 10,000 shares issued and outstanding) | 400,000 |

*Required:*

For each of the following independent situations, compute the amount of dividends that would be paid for each class of stock in 2002 and 2003. Assume that total dividends of $10,000 and $80,000 are paid in 2002 and 2003, respectively.

1. Preferred stock is noncumulative.
2. Preferred stock is cumulative, and no dividends are in arrears in 2002.
3. Preferred stock is cumulative, and no dividends have been paid during 2000 and 2001.

## PROBLEM 11-7 DIVIDEND CALCULATIONS

Rasmussen Corporation had authorization for 40,000 shares of 6% preferred stock, par value $10 per share, and 8,000 shares of common stock, par value $100 per share, all of which are issued and outstanding. During the years beginning in 2002, Rasmussen Corporation maintained a policy of paying out 50% of net income in cash dividends. One-half the net income for the three years beginning in 2002 was $16,000, $160,000, and $128,000. There are no dividends in arrears for years prior to 2002.

*Required:*

Compute the amount of dividends paid to each class of stock for each year under the following separate cases:

1. Preferred stock is noncumulative.
2. Preferred stock is cumulative.
3. **Interpretive Question:** Why is it important that a common stockholder know about the dividend privileges of the preferred stock?

## PROBLEM 11-8 DIVIDEND PAYOUT RATIO

The following numbers are for three different companies:

| | A | B | C |
|---|---|---|---|
| Cash | $ 50 | $ 200 | $ 400 |
| Retained earnings | 900 | 800 | 3,500 |
| Cash dividends | 80 | 0 | 500 |
| Paid-in capital | 1,000 | 2,500 | 2,000 |
| Total liabilities | 600 | 300 | 1,400 |
| Sales | 5,000 | 10,000 | 4,000 |
| Net income | 200 | 500 | 800 |

*Required:*

1. For each company, compute the dividend payout ratio.
2. **Interpretive Question:** Which of the three companies is most likely to be a high-growth Internet company? Which is most likely to be an old, stable company? Explain.

## PROBLEM 11-9 PREPARING THE STOCKHOLDERS EQUITY SECTION AND RECORDING DIVIDENDS

In 2001, Lee Ann Adams and some college friends organized The Candy Jar, a gourmet candy company. In 2001, The Candy Jar issued 150,000 of the 300,000 authorized shares of common stock, par value $15, for $3,000,000 and all the 50,000 authorized shares of 10%, $20 par, cumulative preferred stock for $1,100,000. Combined earnings for 2001, 2002, 2003, and 2004 amounted to $1,250,000. Dividends paid in the four years were as follows: 2001 $100,000; 2002 $300,000; 2003 $0; 2004 $150,000.

*Required:*

1. Prepare the stockholders equity section of the balance sheet as of December 31, 2004, for The Candy Jar.
2. Prepare the journal entry that would be necessary to record the dividends paid in 2004.

## PROBLEM 11-10 STOCKHOLDERS EQUITY CALCULATIONS

A computer virus destroyed important financial information pertaining to Denton Company s stockholders equity section. Your expertise is needed to compute the missing account balances. The only information you can recover from the computer s backup system is as follows:

a. During 2003, 8,000 shares of common stock with a par value of $10 were issued when the market price per share was $22.
b. Cash dividends of $30,000 were paid to preferred shareholders.
c. Denton Company acquired 4,000 shares of common stock at $15 to hold as treasury stock.
d. Denton Company reissued 3,000 shares of treasury stock for $18.

| | December 31, 2002 | December 31, 2003 |
|---|---|---|
| Preferred stock | $ 2,000 | $ 2,000 |
| Common stock | 6,000 | ? |
| Paid-in capital in excess of par, preferred stock | 750 | 750 |
| Paid-in capital in excess of par, common stock | 1,750 | ? |
| Paid-in capital, treasury stock | 0 | ? |
| Retained earnings | 4,500 | 5,250 |
| Treasury stock | 0 | (15,000) |
| Total stockholders equity | 15,000 | ? |

*Required:*

1. Calculate the account balances for the following accounts:
   a. Common Stock
   b. Paid-In Capital in Excess of Par, Common Stock
   c. Paid-In Capital, Treasury Stock
   d. Stockholders Equity
2. How much net income did Denton Company report for 2003?

## PROBLEM 11-11 STOCK CALCULATIONS AND THE STOCKHOLDERS EQUITY SECTION

The following account balances appear on the books of World Corporation as of December 31, 2003:

| | |
|---|---|
| Preferred stock (7%, $40 par, 70,000 shares authorized, 50,000 shares issued and outstanding) | $2,000,000 |
| Common stock ($3 par, 500,000 shares authorized, 300,000 shares issued and outstanding) | 900,000 |
| Paid-in capital in excess of par, preferred stock | 310,000 |
| Paid-in capital in excess of par, common stock | 490,000 |
| Net income for 2003 | 130,000 |
| Dividends paid during 2003 | 70,000 |
| Retained earnings, January 1, 2003 | 1,360,000 |

*Required:*

1. If the preferred stock is selling at $45 per share, what is the maximum amount of cash that World Corporation can obtain by issuing additional preferred stock given the present number of authorized shares?
2. If common stock is selling for $12 per share, what is the maximum amount of cash that can be obtained by issuing additional common stock given the present number of authorized shares?
3. Given the account balances at December 31, 2003, and ignoring parts (1) and (2), prepare, in good form, the stockholders equity section of the balance sheet.

## PROBLEM 11-12

### UNIFYING CONCEPTS: STOCK TRANSACTIONS AND THE STOCKHOLDERS EQUITY SECTION

Richard Corporation was founded on January 1, 2003, and entered into the following stock transactions during 2003.

a. Received authorization for 100,000 shares of $20 par-value common stock, 50,000 shares of 6% preferred stock with a par value of $5, and 50,000 shares of no-par common stock.
b. Issued 25,000 shares of the $20 par-value common stock at $24 per share.
c. Issued 10,000 shares of the preferred stock at $8 per share.
d. Issued 5,000 shares of the no-par common stock at $22 per share.
e. Reacquired 1,000 shares of the $20 par-value common stock at $25 per share.
f. Reacquired 500 shares of the no-par common stock at $20 per share.
g. Reissued 250 of the 1,000 reacquired shares of $20 par-value common stock at $23 per share.
h. Reissued all the 500 reacquired shares of no-par common stock at $23 per share.
i. Closed the $14,000 net income to Retained Earnings. Revenues and expenses for the year were $90,000 and $76,000, respectively.

*Required:*

1. Prepare journal entries to record the 2003 transactions in Richard Corporation s books.
2. Prepare the stockholders equity section of Richard Corporation s balance sheet at December 31, 2003. Assume that the transactions represent all the events involving equity accounts during 2003.

## PROBLEM 11-13

### UNIFYING CONCEPTS: STOCK TRANSACTIONS, THE STOCKHOLDERS EQUITY SECTION, AND THE STATEMENT OF STOCKHOLDERS EQUITY

The condensed balance sheet of IBC Corporation at December 31, 2002, is shown below.

**IBC Corporation**
**Balance Sheet**
**December 31, 2002**

| | |
|---|---|
| **Assets** | |
| Cash | $ 400,000 |
| All other assets | 1,042,000 |
| | $1,442,000 |
| **Liabilities and Stockholders Equity** | |
| Current liabilities | $ 164,000 |
| Long-term liabilities | 230,000 |
| | $ 394,000 |
| *Contributed capital:* | |
| Common stock ($10 par, 100,000 shares authorized, 80,000 shares outstanding) | $ 800,000 |
| Paid-in capital in excess of par, common stock | 80,000 |
| Retained earnings | 168,000 |
| | $1,048,000 |
| | $1,442,000 |

During 2003, the following transactions affected stockholders equity:

Feb. 15 Purchased 2,000 shares of IBC outstanding common stock at $15 per share.
May 21 Sold 1,200 of the shares purchased on February 15 at $19 per share.
Sept. 15 Issued 8,000 shares of previously unissued common stock at $21 per share.
Dec. 21 Sold the remaining 800 shares of treasury stock at $22 per share.
31 Closed net income of $85,360 to Retained Earnings. Revenues were $185,360; expenses were $100,000.

*Required:*

1. Prepare the journal entries to record the 2003 transactions.
2. Prepare the stockholders equity section of the balance sheet at December 31, 2003.
3. Prepare a statement of stockholders equity for the year ended December 31, 2003.

## PROBLEM 11-14 UNIFYING CONCEPTS: STOCKHOLDERS EQUITY

Icon Corporation was organized during 2001. At the end of 2002, the equity section of its balance sheet appeared as follows:

| | |
|---|---|
| *Contributed capital:* | |
| Preferred stock (6%, $20 par, 10,000 shares authorized, 5,000 shares issued and outstanding) | $100,000 |
| Common stock ($10 par, 50,000 shares authorized, 11,000 shares issued, 10,000 outstanding) | 110,000 |
| Paid-in capital in excess of par, preferred stock | 20,000 |
| Total contributed capital | $230,000 |
| Retained earnings | 100,000 |
| Total contributed capital plus retained earnings | $330,000 |
| Less treasury stock (1,000 shares of common at cost) | (12,000) |
| Total stockholders equity | $318,000 |

During 2003, the following stockholders equity transactions occurred (in chronological sequence):

a. Issued 500 shares of common stock at $13 per share.
b. Reissued 500 shares of treasury stock at $13 per share.
c. Issued 1,000 shares of preferred stock at $25 per share.
d. Reissued 500 shares of treasury stock at $10 per share.
e. Declared a dividend large enough to meet the current-dividend preference of the preferred stock and to pay the common stockholders $2 per share. Dividends are recorded directly in the retained earnings account.
f. Closed net income of $65,000 to Retained Earnings. Revenues were $400,000; expenses were $335,000.

*Required:*

1. Journalize the transactions.
2. Prepare the stockholders equity section of the balance sheet at December 31, 2003.

## PROBLEM 11-15 COMPREHENSIVE INCOME

The following information relates to Pecos Yo Company:

| | |
|---|---|
| Sales | $15,000 |
| Cost of goods sold | 6,000 |
| Other operating expenses | 2,500 |
| Interest expense | 400 |
| Income tax expense | 3,000 |

In addition, the following events occurred during the year:

a. Pecos Yo Company has an investment portfolio for long-term investment purposes. That portfolio decreased in value by $7,000 during the year.
b. Pecos Yo Company owns a substantial amount of land. During the year, the land increased in value by $11,000.
c. Pecos Yo Company has several foreign subsidiaries. The currencies in the countries where those subsidiaries are located declined in value (relative to the U.S. dollar) during the year. Accordingly, the computed value of the equity of those subsidiaries, in U.S. dollars, decreased by $5,000.

*Required:*

1. Compute Pecos Yo s comprehensive income for the year.
2. **Interpretive Question:** Is comprehensive income a good measure of the change in a company s value during the year?

## PROBLEM 11-16 STOCKHOLDERS EQUITY SECTION WITH SELECTED OTHER INFORMATION

The stockholders equity section of Glory Company s balance sheet was as follows as of December 31, 2003, and December 31, 2002:

**Glory Company**
**Stockholders Equity Sections of Balance Sheet**
**December 31, 2003 and 2002**
**(in millions)**

| | 2003 | 2002 |
|---|---|---|
| Preferred stock | $ 21.4 | $ 21.4 |
| Common stock | 48.4 | 43.2 |
| Paid-in capital, various types | 22.6 | 15.3 |
| Retained earnings | 51.8 | 41.2 |
| Subtotal | $144.2 | $121.1 |
| Accumulated foreign currency translation adjustments | 21.4 | 57.3 |
| Net unrealized gains (losses) on investments in certain debt and equity securities | (46.4) | (8.8) |
| Total stockholders equity | $119.2 | $169.6 |

*Required:* Based on the stockholders equity section for Glory Company, answer the following questions:

1. Do you believe Glory Company made a profit during the year 2003? Assuming that only net income and dividends changed the retained earnings balance from 2002 to 2003, by how much did net income exceed dividends?
2. What was the total amount of money raised during 2003 from the selling of stock? (Assume that only the selling of stock affected the contributed capital accounts.)
3. Did the market value of Glory Company s securities that affect the equity section increase or decrease in 2003? By how much?
4. **Interpretive Question:** The board of directors believes it should fire the current management of the company because total stockholders equity decreased substantially. Do you agree? Why or why not?

expanded material

## PROBLEM 11-17 RECORDING STOCKHOLDERS EQUITY TRANSACTIONS

The stockholders equity section of Hathaway Corporation s December 31, 2002, balance sheet is as follows:

**Stockholders Equity**

| | |
|---|---|
| *Contributed capital:* | |
| Preferred stock (5%, $25 par, 2,000 shares issued and outstanding) | $ 50,000 |
| Common stock ($30 par, 10,000 shares issued and outstanding) | 300,000 |
| Paid-in capital in excess of par, preferred stock | 10,000 |
| Paid-in capital in excess of par, common stock | 100,000 |
| Total contributed capital | $460,000 |
| Retained earnings | 340,000 |
| Total stockholders equity | $800,000 |

During 2003, Hathaway Corporation had the following transactions:

Feb. 1 Paid a cash dividend of $3 per share on common stock. The dividend was declared December 31, 2002.
Mar. 15 Declared and issued a 19% common stock dividend. The market price of the stock on this date was $40 per share.
June 1 Reacquired 3,000 shares of common stock at $35 per share.
Sept. 1 Reissued 500 shares of treasury stock at $40 per share.
Nov. 15 Reissued 500 shares of treasury stock at $32 per share.

*Required:* Record the transactions.

## PROBLEM 11-18 DIVIDEND TRANSACTIONS AND CALCULATIONS

As of December 31, 2002, First Corporation has 200,000 shares of $10 par-value common stock authorized, with 100,000 of these shares issued and outstanding.

*Required:*

1. Prepare journal entries to record the following 2003 transactions:

Jan. 1 Received authorization for 200,000 shares of 7%, cumulative preferred stock with a par value of $10.
2 Issued 10,000 shares of the preferred stock at $15 per share.
June 1 Reacquired 40% of the common stock outstanding for $18 per share.
2 Declared a cash dividend of $10,000. The date of record is June 15.
June 30 Paid the previously declared cash dividend of $10,000.

2. Determine the proper allocation to preferred and common stockholders of a $100,000 cash dividend declared on December 31, 2003. (This dividend is in addition to the June 2 dividend.)
3. **Interpretive Question:** Why didn t the preferred stockholders receive their current-dividend preference of $7,000 in part (2)?

## PROBLEM 11-19 RECORDING DIVIDEND TRANSACTIONS AND REPORTING STOCKHOLDERS EQUITY

Murtry, Inc., reported the following stockholders equity balances in its June 30, 2002, balance sheet:

| | |
|---|---|
| Preferred stock (6%, $100 par, cumulative; 20,000 shares authorized, 6,000 shares issued and outstanding) | $ 600,000 |
| Common stock ($20 par; 250,000 shares authorized, 60,000 shares issued and outstanding) | 1,200,000 |
| Retained earnings | 950,000 |

*Required:*

1. The following stockholders equity transactions occurred (in the order presented) during the fiscal year ending June 30, 2003. Prepare the necessary journal entries to record the transactions.
   a. Murtry declared and issued a 5% dividend on common stock; the market value of the stock was $30 per share on the date of the dividend.
   b. A 50% stock dividend on common stock was declared and issued when the stock was trading at a market price of $40 per share.
   c. A cash dividend was declared at the end of the fiscal year. The common stockholders will receive 50 cents per share after the current and cumulative preference on the preferred stock is satisfied. Preferred stock dividends are one year in arrears.
2. Assuming Murtry s net income for the year ended June 30, 2003, is $310,000, prepare the stockholders equity section of the June 30, 2003, balance sheet and a statement of stockholders equity for the 2002 2003 fiscal year.
3. **Interpretive Question:** What is the effect on earnings per share when a company has a stock dividend or stock split?

## PROBLEM 11-20 STATEMENT OF RETAINED EARNINGS AND STOCKHOLDERS EQUITY

The following balances appear in the accounts of Iron Corporation as of December 31, 2003:

| | |
|---|---|
| Retained earnings, January 1, 2003 | $128,000 |
| Prior-period adjustment (tax adjustment for 2001) | (57,000) |
| Net income for 2003 | 60,000 |
| Preferred stock (7%, $12 par, 20,000 shares authorized, 5,000 shares issued and outstanding) | 60,000 |
| Common stock ($5 par, 100,000 shares authorized, 16,000 shares issued, 200 held as treasury stock) | 80,000 |
| Paid-in capital in excess of par, preferred stock | 13,400 |
| Paid-in capital in excess of par, common stock | 42,800 |
| Treasury stock | 3,600 |
| Cash dividends (declared during 2003) | 10,000 |

*Required:*

1. Prepare the statement of retained earnings for Iron Corporation as of December 31, 2003.
2. Prepare the stockholders equity section of Iron Corporation s balance sheet as of December 31, 2003.

## PROBLEM 11-21 STATEMENT OF RETAINED EARNINGS

Marsh Corporation records show the following at December 31, 2003:

| | |
|---|---|
| Extraordinary loss (net of tax) | $(50,000) |
| Cash dividends declared during 2003 | 30,000 |
| Stock dividends issued during 2003 | 14,000 |
| January 1, 2003, retained earnings balance | 690,000 |
| Prior-period adjustment (net of tax) | (36,000) |
| Net income before extraordinary items and taxes (assume a 40% tax rate) | 160,000 |

*Required:* Prepare a 2003 statement of retained earnings.

## PROBLEM 11-22 ACCOUNTING FOR A PROPRIETORSHIP

On January 1, 2003, Pat Larsen decided to open the Donut Shop. Pat deposited $40,000 of her own money in a company bank account and obtained a $30,000 loan from a local bank. During its first year of operation, the shop had net income of $84,000, which included $150,000 of revenues and $66,000 of expenses. Pat withdrew a lump sum of $48,000 from the business that year to cover personal living expenses.

*Required:*

1. Prepare journal entries to record:
   a. Pat s original contribution to the firm.
   b. The bank loan.
   c. Pat s withdrawal for her living expenses.
   d. Any closing entries required at year-end.
2. Prepare a statement of owner s capital for 2003.
3. **Interpretive Question:** How would the accounting for the transactions in part (1) be different if Pat s business were a corporation?

## PROBLEM 11-23 PARTNERSHIP ACCOUNTING

On January 1, 2003, Reed and Bailey established a partnership to sell fruit.

a. Reed invested $42,000 cash in the partnership, and Bailey invested $20,000 cash and a building valued at $25,000.
b. Reed invested another $6,000 cash. Bailey donated a truck valued at $7,000.
c. Reed withdrew $11,000 cash, and Bailey withdrew $6,300 cash.
d. A fire destroyed half of the building donated by Bailey. There was no insurance on the building. The partners share profits and losses equally.

e. Reed and Bailey agree to admit a third partner on March 1 of the next year. This partner, Kiefer, promises to invest $50,000 cash.

*Required:*

1. Journalize the transactions.
2. Journalize the closing entries. Assume revenues totaled $50,000 and expenses totaled $31,000.
3. Compute each partner s capital balance at the end of 2003.
4. **Interpretive Question:** What is the relationship between the amount of capital contributed by each owner and the way profits are to be allocated?

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***Analyzing 11-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** is included in Appendix A. Microsoft s stockholders equity statements provide details of equity transactions of the company during the 1999 fiscal year. Locate the statements and consider the following questions:

1. What was the major reason that stockholders equity increased for the year?
2. How much did common stockholders receive in dividends during the year? How much did preferred stockholders receive?
3. Did Microsoft issue more shares than it repurchased during the year or vice versa? How can you tell? (HINT: You should look in the notes to the statements to answer this question.)

***Analyzing 11-2 (Wal-Mart Stores, Inc.)***

**WAL-MART** has a simple, straightforward statement of shareholders equity. That statement for the years 1998 and 1999 is reproduced on the top of the next page.

**Consolidated Statements of Shareholders Equity**

| (Amounts in millions except per share data) | Number of Shares | Common Stock | Capital in Excess of Par Value | Retained Earnings | Other Accumulated Comprehensive Income | Total |
|---|---|---|---|---|---|---|
| **Balance January 31, 1998** | 2,241 | $224 | $585 | $18,167 | $(473) | $18,503 |
| Net income | | | | 4,430 | | 4,430 |
| Cash dividends ($0.16 per share) | | | | (693) | | (693) |
| Foreign currency translation adjustment | | | | | (36) | (36) |
| Purchase of company stock | (21) | (2) | (37) | (1,163) | | (1,202) |
| Two-for-one stock split | 2,224 | 223 | (223) | | | |
| Other | 4 | | 110 | | | 110 |
| **Balance January 31, 1999** | 4,448 | 445 | 435 | 20,741 | (509) | 21,112 |
| Net income | | | | 5,377 | | 5,377 |
| Cash dividends ($0.20 per share) | | | | (890) | | (890) |
| Foreign currency translation adjustment | | | | | 54 | 54 |
| Purchase of company stock | (2) | | (2) | (99) | | (101) |
| Other | 11 | 1 | 281 | | | 282 |
| **Balance January 31, 2000** | 4,457 | $446 | $714 | $25,129 | $(455) | $25,834 |

1. Based on the dividends paid during each year, how many shares of stock were outstanding when the dividends were paid?
2. Why isn t the number of shares receiving dividends exactly the same as the number of shares outstanding on January 31 of each year as indicated in the statement?
3. Estimate Wal-Mart s dividend payout ratio for each year. (HINT: You will need to estimate an earnings-per-share figure given the available data.)

## INTERNATIONAL CASE

### *The EMI Group*

The shareholders equity section of the balance sheet of **THE EMI GROUP**, a company based in the United Kingdom, is reproduced below. Review this information and answer the questions below.

**Balance Sheets at 31 March 1999**

| | Group | |
|---|---|---|
| | 1999 £m | Pro Forma 1998 £m |
| **Capital and reserves** | | |
| Called-up share capital | **110.2** | 110.1 |
| Share premium reserve | **441.2** | 439.0 |
| Capital redemption reserve | **495.8** | 495.8 |
| Other reserves | **636.9** | 786.3 |
| Profit and loss reserve (including goodwill previously written off) | **710.5** | 529.3 |
| **Equity shareholders funds** | **2,394.6** | 2,360.5 |

1. What do you think the term called-up share capital means?
2. What does the term profit and loss reserve mean?
3. In the United Kingdom, goodwill has historically not been recorded as an asset. Instead, it has frequently been recorded as a contra-equity account. As of March 31, 1997, The EMI Group reported a goodwill contra-equity amount of 524.7 million pounds. Assuming that The EMI Group paid cash of 524.7 million pounds for the goodwill it purchased, provide the journal entry that would have been made at the time. How does this journal entry differ from the one that would have been made had EMI been a U.S.-based company? [Note: Since 1997, The EMI Group has changed its accounting for goodwill; EMI now uses the same approach used in the United States.]

## ETHICS CASE

***Buying Your Own Shares Back***

You are the chief financial officer for Esoteric, Inc., a company whose stock is publicly traded. The stock market has recently experienced an overall downturn, and the price of your company s stock has decreased by about 15%. This significantly affects the compensation of the executives of your company as their bonuses are based on the company s stock price. The bonus plan rewards company executives who take actions to increase the value of the company to shareholders. The reasoning is that if management increases the value of the company to shareholders, management should be rewarded.

As you consider ways to increase the value of the company, when the market itself is slumping, the following idea pops into your head: We will buy back our own stock. That will cause the remaining outstanding stock to increase in value, which is good for those individuals holding that stock. And it will also result in you and the other corporate executives receiving sizable bonuses.

Do you think this plan of action to increase stock price was what the designers of the compensation plan had in mind when they linked executive bonuses to company stock price? Does buying back the company s own stock add value to the company as a whole? Should the compensation plan prohibit activities like buying stock back? Consider these issues and be prepared to discuss them.

expanded material

## WRITING ASSIGNMENT

***Stock Splits Versus Stock Dividends***

In this chapter, you learned that we account for stock dividends differently than we account for stock splits. For stock dividends, the accounting also varies, depending on the size of the dividend. Prepare a two-page memo summarizing the following points:

1. To an investor who holds stock in a company, what is the difference between a small stock dividend, a large stock dividend, and a stock split?
2. To the accountant who must account for business transactions, what is the difference between a small stock dividend, a large stock dividend, and a stock split?
3. If you held stock in a company that was contemplating the declaration of a stock dividend or a stock split, which would you prefer?

## THE DEBATE

***Microsoft Should Share the Wealth!***

Turn to **MICROSOFT** s annual report in Appendix A and notice its cash balance. As of June 30, 1999, the company had over $17 billion in cash and short-term investments. It is likely that the company has a lot more cash on hand now. Should Microsoft use some of that cash to pay a dividend to its common shareholders?

Divide your group into two teams.

The first team represents the position that Bill Knows Best Don t Pay a Dividend. Prepare a two-minute presentation outlining the reasons why Microsoft s no-dividend policy is appropriate.

The second team represents the position that A Dividend Should Be Paid. Prepare a two-minute presentation outlining reasons why Microsoft should use some of its stockpile of cash to reward common shareholders who have never received a dividend.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignments given in earlier chapters. If you completed those spreadsheets, you have a head start on this one.

1. Handyman wishes to prepare a forecasted balance sheet and income statement for 2004. Use the original financial statement numbers for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2] as the basis for the forecast, along with the following additional information:
   a. Sales in 2004 are expected to increase by 40% over 2003 sales of $700.
   b. Cash will increase at the same rate as sales.
   c. The forecasted amount of accounts receivable in 2004 is determined using the forecasted value for the average collection period. For simplicity, do the computations using the end-of-period accounts receivable balance instead of the average balance. The average collection period for 2004 is expected to be 14.08 days.
   d. The forecasted amount of inventory in 2004 is determined using the forecasted value for the number of days sales in inventory (computed using the end-of-period inventory balance). The number of days sales in inventory for 2004 is expected to be 107.6 days.
   e. The forecasted amount of accounts payable in 2004 is determined using the forecasted value for the number of days purchases in accounts payable (computed using the end-of-period accounts payable balance). The number of days purchases in accounts payable for 2004 is expected to be 48.34 days.
   f. The $160 in operating expenses reported in 2003 breaks down as follows: $5 depreciation expense, $155 other operating expenses.
   g. New long-term debt will be acquired (or repaid) in an amount sufficient to make Handyman s debt ratio (total liabilities divided by total assets) in 2004 exactly equal to 0.80.
   h. No cash dividends will be paid in 2004.
   i. New short-term loans payable will be acquired in an amount sufficient to make Handyman s current ratio in 2004 exactly equal to 2.0.
   j. The forecasted amount of property, plant, and equipment (PP&E) in 2004 is determined using the forecasted value for the fixed asset turnover ratio. For simplicity, compute the fixed asset turnover ratio using the end-of-period *gross* PP&E balance. The fixed asset turnover ratio for 2004 is expected to be 3.518 times.

k. In computing depreciation expense for 2004, use straight-line depreciation and assume a 30-year useful life with no residual value. Gross PP&E acquired during the year is depreciated for only half the year. In other words, depreciation expense for 2004 is the sum of two parts: (1) a full year of depreciation on the beginning balance in PP&E, assuming a 30-year life and no residual value and (2) a half-year of depreciation on any new PP&E acquired during the year, based on the change in the gross PP&E balance.

l. Assume an interest rate on short-term loans payable of *6.0%* and on long-term debt of *8.0%*. Only a half-year s interest is charged on loans taken out during the year. For example, if short-term loans payable at the end of 2004 are $15 and given that short-term loans payable at the end of 2003 were $10, total short-term interest expense for 2004 would be $0.75 [($10 × .06) + ($5 × .06 × ½)].

Note: These statements were constructed as part of the spreadsheet assignment in Chapter 10; you can use that spreadsheet as a starting point if you have completed that assignment.

For this exercise, add the following additional assumptions:

In addition to preparing forecasted financial statements for 2004, Handyman also wishes to prepare forecasted financial statements for 2005. All assumptions applicable to 2004 are also assumed to be applicable to 2005. Sales in 2005 are expected to be 40% higher than sales in 2004.

*Clearly state any additional assumptions that you make.*

2. For each forecasted year, 2004 and 2005, state whether Handyman is expected to issue new shares of stock or to repurchase shares of stock.
3. Repeat (2), with the following changes in assumptions:
   a. The debt ratio in 2004 and 2005 is exactly equal to 0.70.
   b. The debt ratio in 2004 and 2005 is exactly equal to 0.95.
4. Comment on how it is possible for a company to have negative paid-in capital.

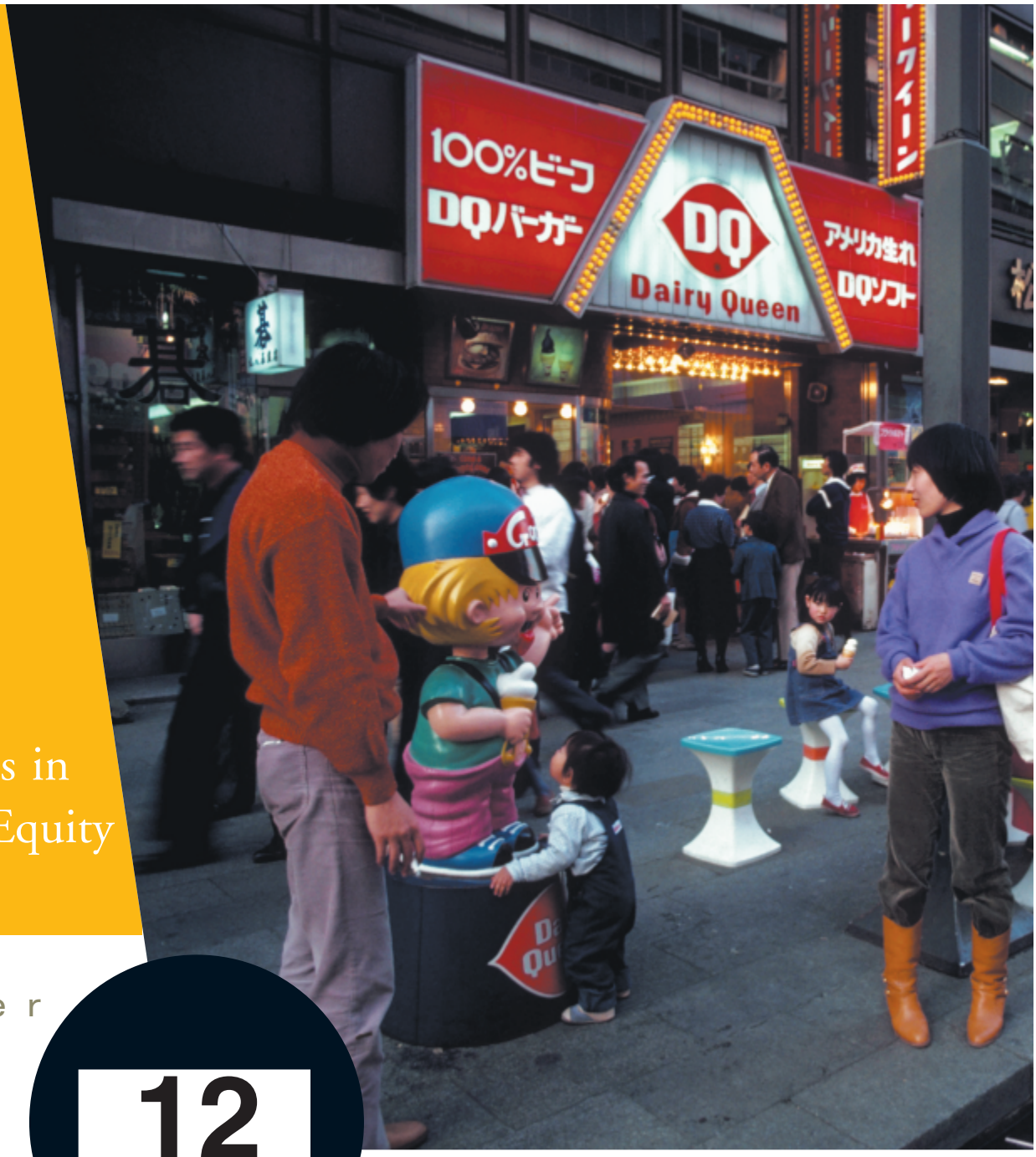
## INTERNET SEARCH

***Dow Jones & Company***

We began this chapter with a look at the history of **DOW JONES & COMPANY**. Let s continue our examination of this company using its Internet site. Access Dow Jones site at **http://dowjones.com**. Sometimes Web addresses change, so if this address doesn t work, access the Web site for this book (**http://albrecht.swcollege.com**) for an updated link to Dow Jones & Company.

Once you have gained access to the company s Web site, answer the following questions:

1. What business publications is the company responsible for? What other services does the company provide?
2. Locate the company s most recent annual report. Which of the company s business segments is the most profitable as measured by operating income as a percentage of revenues?
3. Did the company pay a dividend in the most recent year? If so, how much per share? Compute the company s dividend payout ratio.
4. Review the note disclosure relating to the company s executive incentive plan (employee stock compensation plans). What is the objective of this plan?




# Investments in Debt and Equity Securities

chapter

12

## learning objectives

After studying this chapter, you should be able to:

1. Understand why companies invest in other companies.
2. Understand the different classifications for securities.
3. Account for the purchase, recognition of revenue, and sale of trading and available-for-sale securities.
4. Account for changes in the value of securities.

expanded material

5. Account for held-to-maturity securities.
6. Account for securities using the equity method.

Warren Buffett, who has been called "the world's greatest investor," has lived most of his life not far from the house in which he grew up in Omaha, Nebraska.[1] He attended the Wharton School at the University of Pennsylvania (but dropped out because he thought he wasn't learning anything); received a bachelor's degree from the University of Nebraska; applied for admission to do graduate work at Harvard but was rejected; and instead earned a master's degree in economics at Columbia.

Buffett began his professional career as a stock trader and eventually created an investment fund called the Buffett Partnership, which earned a 32% average annual return over its life from 1956 to 1969. Buffett also began purchasing shares in a small textile manufacturer called **BERKSHIRE HATHAWAY**. His first 2,000 shares of Berkshire Hathaway stock cost $7.50 per share (plus $0.10 per share in commissions). Buffett transformed Berkshire Hathaway from a textile manufacturer into a holding company that invests in the stock of other companies. A selection of the companies controlled by Berkshire Hathaway, along with some of Berkshire Hathaway's major investments, is shown in Exhibit 12-1.

How has Berkshire Hathaway's stock performed under Warren Buffett's leader- setting the stage

**exhibit 12-1** Berkshire Hathaway's Operations and Investments

| Companies Owned by Berkshire Hathaway* | Industry |
|---|---|
| GEICO | Property and casualty insurance |
| FlightSafety International | Aviation training |
| See's Candies | Candy |
| Kirby | Vacuum cleaners |
| Nebraska Furniture Mart, R.C. Willey, Star Furniture, and Jordan's Furniture | Home furnishings |
| The Buffalo News | Newspaper publishing |
| Dexter Shoe Company, H.H. Brown Shoe Company, and Lowell Shoe, Inc. | Shoes |
| Helzberg Diamond Shops and Borsheim's | Retail jewelry stores |
| International Dairy Queen | Fast food and dairy desserts |
| Orange Julius | Blended fruit drinks |

| Companies in Which Berkshire Hathaway Has Invested* | Ownership Percentage |
|---|---|
| American Express Company | 11.3% |
| The Coca-Cola Company | 8.1% |
| M&T Bank | 6.5% |
| Freddie Mac | 8.6% |
| The Gillette Company | 9.0% |
| The Washington Post Company | 18.3% |
| Wells Fargo & Company | 3.6% |

*This information is as of the end of 1999.

1 Janet Lowe, *Warren Buffett Speaks: Wit and Wisdom from the World's Greatest Investor* (New York: John Wiley & Sons, 1997).

ship? Well, on October 23, 2000, the company's stock closed at $58,600 per share! How has Warren Buffett done personally? He receives a salary of only $100,000 per year (making him the lowest paid CEO among the nation's top 200 companies). But don't feel sorry for Mr. Buffett. He was smart enough to purchase a large number of Berkshire Hathaway shares when the price was low. With a personal worth of approximately $25.6 billion, he ranks fourth on the list of the world's richest people.[2]

*In this chapter we focus on why companies invest in other companies and how to account for those investments. When a company purchases the debt or equity securities of another company, several accounting issues are raised: how to account for the initial purchase, how to account for the receipt of dividends or interest, how to account for any subsequent changes in value of the security, and how to account for the security if it is sold or matures. The remainder of this chapter focuses on each of these issues. First, we examine how securities are classified and the different accounting implications of these classifications. We then introduce proper accounting for the purchase, receipt of revenue, sale, and valuation of securities. In the expanded material section of the chapter, we review the computations and accounting for a bond premium or discount from the point of view of the purchaser (we focused on the seller's perspective in Chapter 10). We also introduce the equity method of accounting and discuss when its application is appropriate. Exhibit 12-2 highlights the financial statement accounts that will be discussed in this chapter.*

**1**
Understand why companies invest in other companies.

## WHY COMPANIES INVEST IN OTHER COMPANIES

Companies invest in the debt and equity securities of other companies for a variety of reasons. A major reason is to earn a return on their excess cash. Most businesses are cyclical or seasonal; that is, their cash inflows and outflows vary significantly throughout the year. At certain times (particularly when inventories are being purchased), a company's cash supply is low. At other times (usually during or shortly after heavy selling seasons), there is excess cash on hand. A typical cash flow pattern for a retail firm is illustrated in Exhibit 12-3. The time line shows that the company has insufficient cash for inventory buildup for the Christmas rush, followed by large amounts of accounts receivable (from credit sales), and then an excess of cash immediately after Christmas.

When a company needs cash to meet current obligations, funds can be obtained through such means as borrowing from financial institutions or selling (factoring) accounts receivable or other assets. During those periods of time when excess cash exists, firms usually prefer to invest that money and earn a return. One possibility is to place the money in a bank and earn a fixed return. Most firms, however, are not satisfied with the low interest rates offered by financial institutions and have turned to other investment alternatives. Investing in the stocks (equity) and bonds (debt) of other companies allows a firm to earn a higher rate of return by accepting a higher degree of risk. **BERKSHIRE HATHAWAY** is perhaps the most famous example of a company whose sole purpose is to invest in the debt and equity securities of other companies.

Firms also invest in other companies for reasons other than to earn a return. The desire to ensure a supply of raw materials, to influence the board of directors, or to diversify its product offerings are additional reasons for a company to invest in other companies. For example, **THE COCA-COLA COMPANY** owns 40% of **COCA-COLA ENTERPRISES** and 37% of **COCA-COLA AMATIL LTD.** These two companies bottle many of Coke's products, and The Coca-Cola Company maintains a significant ownership percentage to ensure that the bottling facilities remain available. As indicated in Exhibit 12-1, Berkshire Hathaway owns a number of companies outright and has significant investments in other companies. These investments allow Berkshire Hathaway to significantly influence or even control the operating decisions of the investees.

2 If you have never had the pleasure of reading one of Warren Buffett's "Chairman's Letter to the Shareholders," you should take the opportunity now. No one writes a funnier, more insightful letter than Mr. Buffett. The company's Internet address is **http://www.berkshirehathaway.com**.

**exhibit 12-2** Financial Statement Items Covered in This Chapter

**Balance Sheet**

**Current assets**
Investments

Long-term investments

**Stockholders' equity**
Unrealized increase/decrease in value of securities

**Statement of Cash Flows**

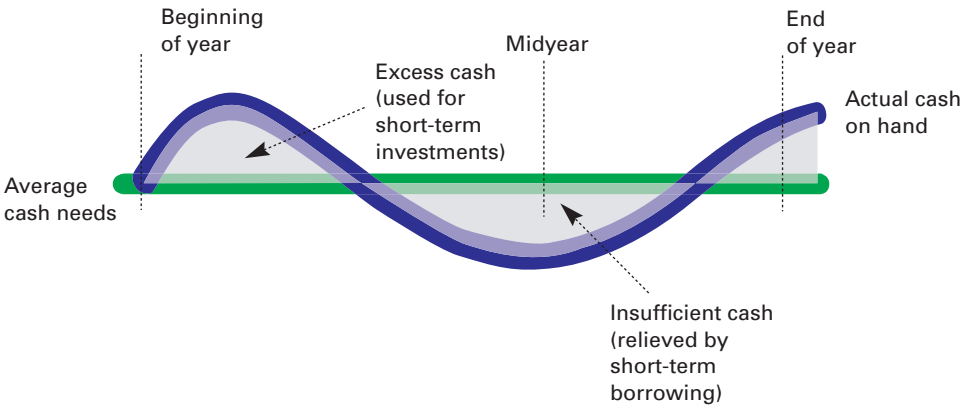
**Operating activities**
Purchase of trading securities
Sale of trading securities

**Investing activities**
Purchase of debt and equity securities other than trading securities
Sale of debt and equity securities other than trading securities

**Income Statement**

**Other revenues and expenses**
Gains and losses on sales of securities
Unrealized gains and losses on securities
Interest revenue

**exhibit 12-3** A Cash Flow Pattern



**COCA-COLA COMPANY** owns significant stakes in companies that bottle its products. Such investments allow Coca-Cola to ensure that its bottling facilities remain available and that its soft-drink products consistently meet the company's quality standards.

Rather than investing in the research and development required to develop a product or an area of expertise, many companies find it cheaper to purchase all or part of another company that has already expended the effort and the time to develop the desired product or know-how. As an example, to complement its existing software, **NOVELL** (a computer company specializing in networking) purchased WordPerfect and Quattro Pro, word-processing and spreadsheet software packages, respectively. This purchase then allowed Novell to assemble a menu of software packages to compete with **MICROSOFT**'s Word, Excel, PowerPoint, and Access software packages. Novell's attempt to compete with Microsoft failed, however, and the company eventually sold WordPerfect to **COREL**.

STOP & THINK Can you think of additional reasons why companies would purchase interests in other companies?

## to summarize

Companies invest in other companies for a variety of reasons. In most cases, the objective is to earn a return on the investment, either through the receipt of interest or dividends, or through an increase in the value of the investment. A firm may also invest in other companies so that it will be able to influence their operating decisions. In some cases, companies find it cheaper to buy another company to gain access to its assets than to expend the resources necessary to develop the assets on their own.

## 2

Understand the different classifications for securities.

## CLASSIFYING A SECURITY

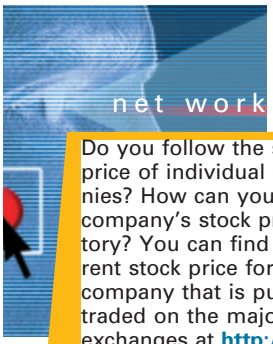
**debt securities** Financial instruments issued by a company that carry with them a promise of interest payments and the repayment of principal.

Two general types of securities are purchased by companies—debt securities and equity securities. **Debt securities** are financial instruments that carry with them the promise of interest payments and the repayment of the principal amount. Bonds are the most common type of debt security. Debt securities are issued by companies when the need for cash arises. These securities are often traded on public exchanges such as the New York Bond Exchange. Investors often prefer debt securities to equity securities because of the certainty of the income stream (interest)

and the relative safety (low risk) of debt as an investment. Investors in corporate debt securities have priority over investors in equity securities, both for the yearly interest payments and for the return of principal if the issuing corporation gets into financial difficulty. Bonds issued by corporations are the most common type of debt securities (recall from Chapter 10 that bonds are typically issued in multiples of $1,000). Once the bonds are issued, ownership of the entire bond issuance, or just a portion, can change hands frequently.

**equity securities (stock)** Shares of ownership in a corporation that can change significantly in value and that provide for a return to investors in the form of dividends.

Unlike bonds, **equity securities** (or **stock**), which are also traded on public exchanges, represent actual ownership interest in a corporation. The owner of equity securities is allowed to vote on such corporate matters as executive compensation policies, who will serve on the board of directors of the corporation, and who will be the outside auditor. In addition to voting, the owner of stock often receives a return on that investment in the form of a dividend. A second type of return often accumulates to the stockholder as well—appreciation in stock price. Many investors invest in a company not for the dividend but for the potential increase in stock price. High-tech companies typically do not pay dividends, instead electing to funnel their profits back into the company. Investors know that their return in high-tech companies will come in the form of an increased stock price, not a dividend. With the potential for increased stock price also comes a risk—the stock price could fall. Holders of debt securities, barring extreme financial difficulties by the issuer, will always receive the face amount of the bond upon maturity. Equity holders do not have that same promise. Stock can greatly increase in value or become worthless.




Do you follow the stock price of individual companies? How can you get a company's stock price history? You can find the current stock price for any company that is publicly traded on the major stock exchanges at **http://finance.yahoo.com.** At what price is **BERKSHIRE HATHAWAY** (trading symbol BRKa) currently trading?

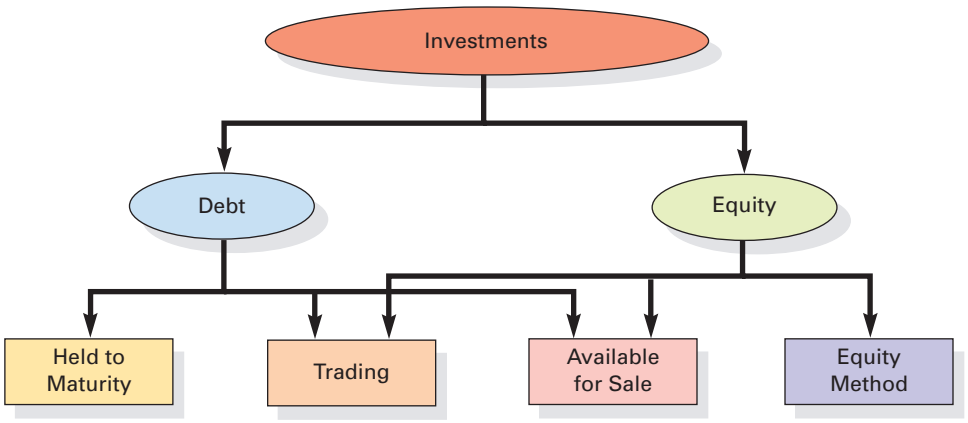
As mentioned earlier, investors can purchase both debt and equity securities with different goals in mind. Some may purchase to receive interest or dividend payments or to realize quick gains on price changes, while others may invest for more long-term reasons. Accounting standard-setters have developed different methods of accounting for investments depending on the intentions of the holder of the security. Exhibit 12-4 outlines the major classifications of debt and equity securities.

## Held-to-Maturity Securities

**held-to-maturity security** A debt security purchased by an investor with the intent of holding the security until it matures.

If an investor purchases a debt security with the intent of holding the security until it matures, it is classified as a **held-to-maturity security** and is accounted for using techniques similar to those discussed in Chapter 10 for the bond issuer. The investor and the issuer record the same amounts but in a different way. With bond liabilities, the face value of the bonds is recorded in Bonds Payable, and a separate contra account is maintained for any discount or premium. Amortization of the discount or premium is then recorded in these contra accounts. With bond investments, the actual amount paid for the bonds (the cost of the asset), not the face value, is originally debited to the investment account. The amortization of any bond premium or discount

**exhibit 12-4** Classifications of Debt and Equity Securities



**fyi**

Equity securities cannot be classified as held-to-maturity securities.

is then recorded directly in the investment account. Thus, if you recall the accounting for Bonds Payable as presented in Chapter 10, you already know most of the accounting for a bond investment that is expected to be held to maturity. The procedures relating to amortizing premiums and discounts for the investors are discussed in the expanded material section of this chapter. Note that equity securities cannot be classified as held-to-maturity securities; equity securities typically do not mature.[3]

## Equity Method Securities

**equity method** A method used to account for an investment in the stock of another company when significant influence can be imposed (presumed to exist when 20 to 50% of the outstanding voting stock is owned).

In the case of equity securities, accounting standard-setters have determined that if securities are held with the objective of significantly influencing the operations of the investee, then the securities should be accounted for using the **equity method**. The equity method records changes in the value of the investment as the net assets of the investee change. The assumption underlying the equity method is that if the investor can influence the operating decisions of the investee, then any change in the net assets of the investee should be reflected on the books of the investor. In determining what constitutes significant influence, the Accounting Principles Board suggests that, unless evidence exists to the contrary, ownership of at least 20% of the outstanding common stock of a company, but less than 50%, indicates the existence of significant influence. Because accounting for a security using the equity method can get complicated, details of the equity method are presented in the expanded material section of this chapter. If ownership exceeds 50%, then a controlling interest is assumed, and the accounting becomes far more complex. The FASB is examining the issue of control and has suggested that companies look beyond ownership percentage and examine other factors that may indicate control.[4] Two factors the FASB has highlighted are (1) ownership of a large minority voting interest (approximately 40%) with no other group owning a significant interest and (2) a company's domination of the process for electing the investee's board of directors. In cases where it is determined that control exists, the parent company (the acquiring company) and the subsidiary company (the acquired company) are required to combine their financial statements into one set of statements as if they were one economic entity. Such combined statements are called **consolidated financial statements**. The preparation of consolidated financial statements is covered in advanced accounting courses.

**fyi**

Debt securities cannot be classified as equity method securities.

**consolidated financial statements** Statements that report the combined operating results, financial position, and cash flows of two or more legally separate but affiliated companies as if they were one economic entity.

## Trading and Available-for-Sale Securities

In those instances where securities are not being held to maturity (in the case of debt) or to control or significantly influence an investee (in the case of equity), the Financial Accounting Standards Board has developed two other classes of securities—trading and available-for-sale. **Trading securities** are those debt and equity securities held with the intent of selling the securities should the need for cash arise or to realize gains arising from short-term changes in price. These types of securities are purchased simply to earn a return on excess cash. **Available-for-sale securities** are publicly traded securities that are classified as neither held-to-maturity nor trading (in the case of debt securities). In the case of equity securities, they represent securities that are not classified as trading securities or accounted for using the equity method.

**trading securities** Debt and equity securities purchased with the intent of selling them should the need for cash arise or to realize short-term gains.

**available-for-sale securities** Debt and equity securities not classified as trading, held-to-maturity, or equity method securities.

## Why the Different Classifications?

Why are there different classifications for debt and equity securities? Why not simply classify all securities as "investments"? The reason for the distinction lies in the different treatments of accounting for changes in market value. In the case of securities classified as held-to-maturity, changes in the securities' value between the date of purchase and the maturity date do not

3 There are exceptions to this rule, as in the case of "mandatorily redeemable preferred stock," but the accounting for these types of securities is beyond the scope of this text.
4 Exposure Draft: Consolidated Financial Statements: Purpose and Policy (Stamford: Financial Accounting Standards Board, 1999).

affect the amount to be received at maturity. That amount is fixed on the day the bonds are issued. Thus, temporary changes in the value of securities classified as held-to-maturity are not recognized on the investor's books. Similar reasoning applies to securities accounted for under the equity method. These securities are purchased, not with the intent of selling them in the future, but instead to be able to exercise influence over a corporation. Again, temporary changes in the value of these securities are not recognized on the investor's books.

Trading securities are purchased with the intent of earning a return—through interest or dividends and through short-term resale of the securities. Firms are required to recognize these two types of returns on the income statement. For example, assume that XYZ Company purchases 100 shares of ABC, Inc. stock for $5 per share. During the year, ABC pays a $1 dividend per share, and the value of the stock increases to $7 per share. XYZ will recognize, as income, $100 in dividend income as well as $200 in unrealized market gains. While the $100 in dividends was actually received, the $200 gain was not. The securities would have to have been sold in order to actually receive the $200 increase in value. Recognizing this gain, even though it was not realized through an arm's-length transaction, represents a major departure from the historical cost principle that has guided accounting for centuries. In 1994, the FASB determined that because the fair market value of many debt and equity securities can be objectively determined (via market quotes) and they can easily be sold (one phone call to a broker), it would be appropriate to include any unrealized gains or losses on changes in value of trading securities on the income statement.

**f y i**

Many companies avoid the issue of what to include on the income statement by classifying all their investment securities as being available-for-sale. Berkshire Hathaway and **MICROSOFT** are examples of companies that use this classification scheme.

Changes in the value of securities classified as available-for-sale are recorded on the balance sheet. However, no gain or loss is realized on the income statement. Instead, an adjustment is made directly to a stockholders' equity account—Unrealized Increase/Decrease in Value of Available-for-Sale Securities Equity. The obvious question is "Why aren't changes in the value of these securities reflected on the income statement?" The answer lies in the intent behind holding the securities. Trading securities will probably be sold sooner rather than later. We cannot make that same assumption with available-for-sale securities. We are less certain they will be sold. Because of this uncertainty as to when the change in value will actually be realized, the FASB elected to go around the income statement in reporting changes in value relating to available-for-sale securities. Whatever the classification used, companies disclose their classification in the notes to the financial statements. For example, **BERKSHIRE HATHAWAY** provides the following note disclosure relating to its investments:

> Berkshire's management determines the appropriate classifications of investments at the time of acquisition and re-evaluates the classifications at each balance sheet date. Investments may be classified as held for trading, held to maturity, or, when neither of those classifications is appropriate, as available-for-sale. Berkshire's investments in fixed maturity and equity securities are classified as available-for-sale. Available-for-sale securities are stated at fair value with unrealized gains or losses, net of taxes and minority interest, reported as a separate component in shareholders' equity. Realized gains and losses, which arise when available-for-sale investments are sold (as determined on a specific identification basis) or other than temporarily impaired, are included in the Consolidated Statements of Earnings.

As you can see, Berkshire Hathaway classifies every security as available-for-sale and is very specific as to what this classification means for the financial statements: current values go on the balance sheet, with unrealized gains and losses disclosed in stockholders' equity, while realized gains and losses are reported on the income statement.

Exhibit 12-5 summarizes the classification and disclosure issues relating to investments in debt and equity securities.

## business environment essay

**Following the Stock Market** Stocks are sold in a variety of markets in the same way that bonds are sold. Original issues of stocks are usually sold by an investment banking group, referred to as the underwriters. After stocks are originally sold, they are traded in the marketplace, either on the New York Stock Exchange, the American Stock Exchange, regional market exchanges, or the over-the-counter market. A selected portion of stocks traded on the New York Stock Exchange on Monday, October 23, 2000, is listed here as they were reported in *The Wall Street Journal* on Tuesday, October 24, 2000. The quotations show the following information for each stock: (1) 52-week high and low; (2) the name of the company; (3) the trading symbol for that company; (4) the current dividend; (5) the yield percentage in relation to the purchase price; (6) the price-earnings (PE) ratio; (7) the volume of sales for that day; (8) the high, low, and closing prices for that day; and (9) the net change from the closing price of the previous day's trading. To illustrate how to read the quotation, the information for **BERKSHIRE HATHAWAY** class A common stock is as follows: The 52-week high was $66,900, and the low was $40,800. Berkshire does not pay a dividend. Thus, the dividend amount and dividend yield are blank. The current price is 47 times the annual earnings. A total of 90 (the z indicates that the 90 is actual number of shares sold) shares were traded on Monday, October 23, 2000, with the high price for the day being $59,200 and the low price being $58,600. The stock closed for the day at $58,600, which was $800 lower than the close on Friday, October 20, 2000.

**exhibit 12-5** Classification and Disclosure of Securities

| Classification of Securities | Types of Securities | Disclosed at | Reporting of Temporary Changes in Fair Value |
|---|---|---|---|
| Trading | Debt and equity | Fair value | Income statement |
| Available-for-sale | Debt and equity | Fair value | Stockholders' equity |
| Held-to-maturity | Debt | Amortized cost | Not recognized |
| Equity method | Equity | Cost adjusted for changes in net assets of investee | Not recognized |

## to summarize

Securities are classified depending upon the intent of management. If management's intent is to hold the investment until maturity (debt) or to influence the decisions of an investee (equity), then the held-to-maturity (debt) and eq-

## NEW YORK STOCK EXCHANGE COMPOSITE TRANSACTIONS

Quotations as of 5 p.m. Eastern Time
Monday, October 23, 2000

| | 52 Weeks Hi | 52 Weeks Lo | | Stock | Sym | Div | Yld % | PE | Vol 100s | Hi | Lo | Close | | Net Chg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ▼ | 39 31 | 27 06 | ♣ | Bemis | BMS | .96 | 3.9 | 10 | 10189 | 29 19 | 23 75 | 24 69 | – | 5 44 |
| | 64 25 | 12 | | BenchmkElec | BHE | | ... | 92 | 774 | 47 | 44 38 | 45 25 | – | 1 13 |
| | 50 94 | 35 38 | | Benetton | BNG | 3.78e | 10.6 | ... | 3 | 35 81 | 35 81 | 35 81 | – | 0 13 |
| | 4 50 | 1 44 | | BentonOG | BNO | | ... | dd | 458 | 2 25 | 2 06 | 2 13 | | ... |
| | 12 19 | 4 50 | | BergnBruns | BBC | .04 | .4 | 5 | 11056 | 9 13 | 8 75 | 9 | + | 0 19 |
| | 17 94 | 7 75 | | BergenCapTr | TOPrS | 1.95 | 13.9 | ... | 153 | 14 25 | 13 94 | 14 | + | 0 13 |
| | 66900 | 40800 | | BerkHathwy A | BRKA | | ... | 47 | z90 | 59200 | 58600 | 58600 | – | 800 |
| | 2219 | 1351 | | BerkHathwy B | BRKB | | ... | ... | z6160 | 1953 | 1923 | 1928 | – | 28 |
| | 19 94 | 12 13 | ♣ | BerryPete A | BRY | .40 | 2.3 | 12 | 55 | 17 56 | 17 25 | 17 25 | – | 0 25 |
| | 88 88 | 39 | | BestBuy | BBY | | ... | 25 | 52393 | 44 44 | 40 50 | 43 88 | + | 3 75 |
| | 9 31 | 2 25 | | BethStl | BS | | ... | dd | 7107 | 2 44 | 2 25 | 2 38 | + | 0 13 |
| ▼ | 51 50 | 30 75 | | BethStl pf | | 5.00 | 17.5 | ... | 98 | 30 50 | 28 13 | 28 63 | – | 2 25 |
| ▼ | 26 13 | 14 63 | | BethStl pfB | | 2.50 | 18.7 | ... | 208 | 14 94 | 13 38 | 13 38 | – | 1 50 |
| | 6 38 | 2 50 | | BeverlyEnt | BEV | | ... | dd | 2166 | 4 38 | 4 13 | 4 31 | – | 0 06 |
| | 41 50 | 11 75 | ♣ | BndlyWest | BDY | .08 | .2 | 35 | 4888 | 41 50 | 39 75 | 41 50 | + | 1 56 |
| | 38 50 | 15 81 | | Biomatrx | BXM | | ... | 27 | 682 | 18 25 | 17 63 | 17 63 | – | 0 19 |
| s | 43 50 | 12 72 | | Biovail g | BVF | g | ... | ... | 4270 | 39 69 | 38 | 39 06 | – | 0 06 |
| n | 79 | 39 25 | | Biovail pf | | 1.76e | 2.4 | ... | 55 | 73 38 | 71 06 | 72 25 | – | 1 31 |
| | 134 50 | 23 19 | | Biovail wt | | | ... | ... | 5 | 120 | 116 44 | 120 | + | 3 25 |

**Source:** *The Wall Street Journal,* October, 24, 2000.

uity method (equity) classifications are appropriate. If the securities are being held for other reasons, then management may classify them as either trading or available-for-sale. The importance of the classification becomes apparent when accounting for changes in value.

---

**3**

Account for the purchase, recognition of revenue, and sale of trading and available-for-sale securities.

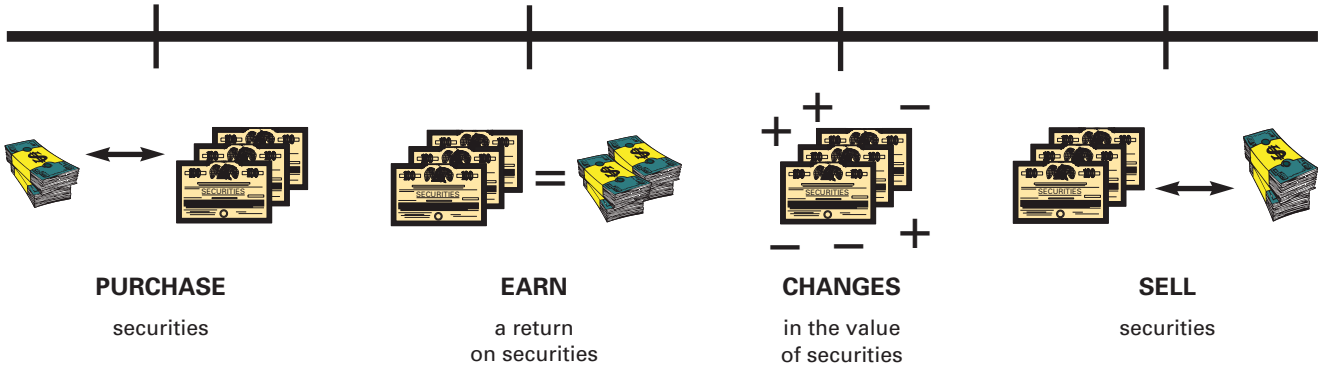
## ACCOUNTING FOR TRADING AND AVAILABLE-FOR-SALE SECURITIES

Four issues are associated with accounting for securities: (1) accounting for the purchase, (2) accounting for the revenue earned, (3) accounting for the sale, and (4) accounting for the changes in value. The first three issues are fairly straightforward and are presented in this section. Accounting for changes in the value of securities is discussed in the following section. The time line in Exhibit 12-6 illustrates the important business issues associated with buying and selling investment securities.

### Accounting for the Purchase of Securities

Investments in securities, like all other assets, are recorded at cost when purchased. This is the case whether the security being purchased is debt or equity or whether it is being held with the intent to sell it quickly or hold it for the long term. Cost includes the market price of the security plus any extra expenditures required in making the purchase (such as a stockbroker's fee).

**exhibit 12-6** Time Line of Business Issues Associated with Buying and Selling Investment Securities




To illustrate the accounting for securities, we will use the following information throughout the chapter. On July 1, 2002, Far Side, Inc. purchased the following securities:

| Security | Type | Classification | Cost (including Broker's Fees) |
|---|---|---|---|
| 1 | Debt | Trading | $ 5,000 |
| 2 | Equity | Trading | 27,500 |
| 3 | Debt | Available-for-sale | 17,000 |
| 4 | Equity | Available-for-sale | 9,200 |

The initial entry to record the investments is as follows:

| | | |
|---|---|---|
| Investment in Trading Securities | 32,500 | |
| Investment in Available-for-Sale Securities | 26,200 | |
| Cash | | 58,700 |

**fyi**

**BERKSHIRE HATHAWAY** purchased with cash over $22 billion of securities in 1999.

Though investments in securities are all recorded at cost, each of the four classifications of securities is accounted for differently subsequent to purchase. As a result, separate accounts are used to record the initial purchase. Management purchased Securities 1 and 2 with the intent of earning a return on the investment and selling the securities should the need for cash arise. Therefore, those securities are classified as "trading." Securities 3 and 4 were also purchased to earn a return on excess cash, but management has classified them as "available-for-sale." While the journal entry illustrated above combines all securities of the same classification into one account, subsidiary records will be kept for each individual security purchased.

## Accounting for the Return Earned on an Investment

When a firm invests in the debt or equity of another firm with the intent of earning a return on its investment, how that return is accounted for varies depending on the classification of the investment. Recall from Chapter 10 that when debt securities are sold, a premium or discount can arise as a result of differences between the stated rate of interest and the market rate of interest. The resulting premium or discount must then be amortized over the life of the investment, thereby affecting the amount of interest expense recorded by the issuer. Theoretically, the purchaser of that debt security must also account for the difference between the purchase price and the eventual maturity value. In the discussion that follows, however, we are assuming that the time for which the investor anticipates holding debt securities classified as "trading" or as "available-for-sale" is not long enough for any amortization of premium or discount to materi-

ally affect interest expense. Amortization of premiums and discounts on debt securities is illustrated for "held-to-maturity" securities in the expanded material section of this chapter.

With this caveat in mind, the accounting for dividends and interest received on trading and available-for-sale securities becomes relatively straightforward. Cash received relating to interest and dividends is credited to Interest Revenue and Dividend Revenue, respectively. Interest earned but not yet received or dividends that have been declared but not paid are also recorded as revenue with a corresponding receivable. Continuing our example, interest and dividends received during 2002 relating to Far Side's securities investments were as follows:

**f y i**

**BERKSHIRE HATHAWAY** reported interest, dividends, and other investment income earned of $1.4 billion during 1999.

| Security | Interest | Dividends |
|---|---|---|
| 1 | $225 | |
| 2 | | $825 |
| 3 | 850 | |
| 4 | | 644 |

The appropriate journal entry to record the receipt of interest and dividends is:

| | | |
|---|---|---|
| Cash | 2,544 | |
| Interest Revenue | | 1,075 |
| Dividend Revenue | | 1,469 |

## Accounting for the Sale of Securities

Suppose that Far Side sells all of its investment in Security 2 for $28,450 on October 31, 2002. As Security 2 was purchased for $27,500, the security has increased in value and that increase must be recorded. The journal entry to record the sale is:

| | | |
|---|---|---|
| Cash | 28,450 | |
| Investment in Trading Securities | | 27,500 |
| Realized Gain on Sale of Trading Securities | | 950 |

If Security 2 had been sold for less then $27,500, a loss would have been recorded. If a broker's fee had been charged on the transaction, the fee would reduce the amount of cash received and decrease the gain recognized. If the broker's fee exceeded $950, a loss would be recorded on the books of the seller.

At the end of the accounting period, any gain or loss on the sale of securities must be included on the income statement. In the above example, the "Realized Gain on Sale of Trading Securities" would be included with Other Revenues and Expenses on the income statement. Note the term *realized*. **Realized gains and losses** indicate that an arm's-length transaction has occurred and that the securities have actually been sold. This distinction is important because in the next section we focus on accounting for unrealized gains and losses—those gains and losses that occur while a security is still being held and no arm's-length transaction has taken place.

**realized gains and losses**
Gains and losses resulting from the sale of securities in an arm's-length transaction.

On its statement of cash flows, **BERKSHIRE HATHAWAY** reported proceeds of $8,864 million from the sale of debt securities and equity securities. On its income statement, the company reported net realized gains of $1,365 million from the sale of securities. With this information, we can compute the historical cost of the securities sold during the period. Proceeds of $8,864 million less a gain of $1,365 million indicate that the cost of the securities was $7,499 million. A summary journal entry indicating the effects of these transactions for Berkshire Hathaway is as follows:

| | | |
|---|---|---|
| Cash | 8,864 | |
| Available-for-Sale Securities | | 7,499 |
| Realized Gain on Sale of Securities | | 1,365 |

business environment essay

**Following the Bond Market** Bonds are sold in a variety of markets. Original issues of bonds, both industrial and governmental, are usually sold by an investment banking group, referred to as the underwriters. Bonds are then traded in the marketplace, either on the New York Bond Exchange or over-the-counter through brokers who make a market for a particular company's bonds. Following is an excerpt from *The Wall Street Journal* showing some composite information regarding bond transactions, as well as price quotations for specific bond issues. The composite information gives investors a sense of the overall activity level of the bond market in relation to previous years. In this case, it shows that sales through October 24, 2000, were lower than in either 1999 or 1998 for comparable time periods. Using a representative sample of bonds trading in the marketplace, it also gives the high and low prices for 2000 and 1999.

The listings for specific bonds give the stated interest rate, the year of maturity, the current yield (effective rate), the sales volume for that trading date (with 000s omitted), the closing price for the day, and the net change from the closing price on the previous day that the bond market was open. Looking at the **IBM** bond issue listed, we can deduce the following: the bonds have a stated interest rate of 7¼% and mature in 2002. The current yield (effective interest) on the bonds is 7.2%. Trading volume for the day was $35,000 face value, and the market price of the bonds at the end of the day was 100¾% (100.75%) of face value, a decrease of ¼ point from the previous day's closing price. Thus, each $1,000 bond was selling for $1,007.50.

**Source:** *The Wall Street Journal,* October 25, 2000.

## U.S. EXCHANGE BONDS

Tuesday, October 24, 2000
Quotations as of 4 p.m. Eastern Time

**SALES SINCE JAN. 1**

| | |
|---|---|
| **New York** | |
| 2000 | $1,912,572,000 |
| 1999 | $2,659,930,000 |
| 1998 | $3,139,412,000 |
| **AMEX** | |
| 2000 | $86,633,000 |
| 1999 | $144,567,000 |
| 1998 | $220,938,000 |

## Dow Jones Bond Averages

| — 1999 — High | Low | — 2000 — High | Low | | — — — 2000 — — — Close | Chg. | %Yld | — — 1999 — — Close | Chg. |
|---|---|---|---|---|---|---|---|---|---|
| 106.88 | 96.80 | 97.01 | 93.23 | 20 Bonds | 95.71 | −0.32 | 8.23 | 98.55 | +0.08 |
| 104.72 | 94.96 | 95.09 | 90.69 | 10 Utilities | 94.18 | −0.03 | 7.93 | 95.86 | +0.18 |
| 109.44 | 98.31 | 99.86 | 95.53 | 10 Industrials | 97.25 | −0.61 | 8.54 | 101.23 | −0.03 |

| Bonds | Cur Yld. | Vol. | Close | | Net Chg. |
|---|---|---|---|---|---|
| ChaseM 6¾08 | 7.1 | 3 | 95 | – | ⅛ |
| ChespkE 9⅝05 | 9.6 | 10 | 99¾ | + | 1¾ |
| ChespkE 9⅛06 | 9.5 | 25 | 96⅛ | – | ½ |
| ChespkE 8½12 | 9.8 | 40 | 87 | | ... |
| ChiqBr 10s09 | 20.8 | 10 | 48 | + | 1⅛ |
| CitigpCap 7¾36 | 8.7 | 10 | 89 | + | 1 |
| vjClardg 11¾02f | ... | 10 | 69⅞ | + | 1⅜ |
| ClrkOil 9½04 | 10.5 | 28 | 90⅛ | – | 1⅝ |
| Coeur 6⅜04 | cv | 56 | 29⅛ | – | 3⅞ |
| Consec 8⅛03 | 10.3 | 20 | 78⅞ | – | 1⅞ |
| Conseco 10¼02 | 14.6 | 22 | 70⅛ | | ... |
| ConNG 6s10 | 6.8 | 25 | 88⅞ | + | 1⅜ |
| DelcoR 8⅝07 | 9.9 | 20 | 87 | – | ⅞ |
| DevonE 4.9s08 | cv | 9 | 91¼ | – | 1¾ |
| Dole 7s03 | 7.5 | 20 | 93¼ | – | ¾ |
| Dole 7⅞13 | 9.0 | 43 | 88 | + | ⅛ |
| DukeEn 5⅞01 | 5.9 | 30 | 99 | | ... |
| DukeEn 6⅞23 | 7.7 | 1 | 89¼ | + | ¾ |
| DukeEn 7½25 | 7.9 | 35 | 95½ | – | ⅛ |
| DukeEn 7s33 | 7.8 | 50 | 90 | – | ¼ |
| Finova 9⅛02 | 12.2 | 105 | 75 | – | 5 |
| Florsh 12¾02 | 36.6 | 20 | 34⅞ | + | 1⅞ |

| Bonds | Cur Yld. | Vol. | Close | | Net Chg. |
|---|---|---|---|---|---|
| FordCr 6⅜08 | 7.0 | 10 | 90¾ | – | 1¾ |
| GMA 6¾02 | 6.8 | 18 | 99½ | + | ⅝ |
| GMA 5⅞03 | 6.0 | 9 | 97¾ | | ... |
| GMA dc6s11 | 6.9 | 14 | 87½ | + | ¾ |
| GMA zr12 | ... | 1 | 390½ | + | ¼ |
| GMA zr15 | ... | 1 | 315⅛ | – | ⅞ |
| vjGenesH 9¾05f | ... | 200 | 11¼ | + | 2⅛ |
| HewlPkd zr17 | ... | 6 | 71⅛ | – | 2⅞ |
| Honywll zr01 | ... | 5 | 93 17/32 | – | 1 17/32 |
| Honywll zr07 | ... | 65 | 62 | + | ¾ |
| Honywll zr09 | ... | 10 | 53 | ... | ... |
| IBM 7¼02 | 7.2 | 35 | 100¾ | – | ¼ |
| IBM 6.45s07 | 6.6 | 30 | 98¼ | + | 1⅜ |
| IPap dc5⅛12 | 6.9 | 26 | 74¾ | + | ¾ |
| KaufB 9⅜03 | 9.7 | 66 | 96¾ | – | ⅝ |
| KaufB 7¾04 | 8.2 | 25 | 94 | + | 2 |
| KaufB 9⅝06 | 9.8 | 117 | 98⅜ | + | ⅜ |
| KentE 4½04 | cv | 40 | 85 | | ... |
| KerrM 7½14 | cv | 14 | 97 | – | ⅛ |
| Leucadia 8¼05 | 8.4 | 12 | 98 | + | ½ |
| Leucadia 7⅞06 | 8.5 | 20 | 92¾ | | ... |
| Leucadia 7¾13 | 8.8 | 11 | 88½ | – | 3 |

## to summarize

Investments in debt and equity securities are recorded at cost, which includes the fair value of the securities plus any other expenditures required to purchase the securities. When purchased, the securities are classified into one of four categories: held-to-maturity, equity method, trading, or available-for-sale securities. Revenues from securities take the form of interest, dividends, or gains or losses from selling the securities and are included under Other Revenues and Expenses on the income statement.

**4**
Account for changes in the value of securities.

## ACCOUNTING FOR CHANGES IN THE VALUE OF SECURITIES

Investments in debt and equity securities are initially recorded at cost. If the value of a security changes after it is purchased, should that change in value be recorded on the investor's books? As stated previously in the chapter, the answer is "it depends." It depends on management's intent regarding that security. In the case of trading and available-for-sale securities, changes in market value are recorded on the books of the investor. For held-to-maturity securities and equity method securities, changes in value are not recorded unless they are considered permanent. To illustrate the accounting for changes in value of securities, we will continue the Far Side example. On December 31, 2002, the following market values were available:[5]

| Security | Classification | Historical Cost | Market Value (December 31, 2002) |
|---|---|---|---|
| 1 | Trading | $ 5,000 | $ 5,200 |
| 3 | Available-for-sale | 17,000 | 16,700 |
| 4 | Available-for-sale | 9,200 | 9,250 |

### Changes in the Value of Trading Securities

At the end of 2002, Far Side computes the market value of its trading securities portfolio and compares it to the historical cost of the portfolio. In this instance, market value is $200 greater than historical cost. The journal entry to record this increase in value is:

| | | |
|---|---|---|
| Market Adjustment—Trading Securities | 200 | |
| Unrealized Gain on Trading Securities—Income | | 200 |

**unrealized gains and losses** Gains and losses resulting from changes in the value of securities that are still being held.

**Market Adjustment—Trading Securities** An account used to track the difference between the historical cost and the market value of a company's portfolio of trading securities.

This journal entry recognizes the $200 increase in the value of the trading securities and records the unrealized gain on the income statement. **Unrealized gains and losses** indicate that the securities have changed in value and are still being held. This journal entry also introduces a new account—**Market Adjustment—Trading Securities**. This account is combined with the trading securities account and reported on the balance sheet. Thus, the balance sheet will reflect the trading securities at their fair market value. Why not adjust the trading securities account directly instead of creating this market adjustment account? The reason is that the use of a valuation account, Market Adjustment—Trading Securities, allows a record of historical cost to be

5 Remember that Security 2 was sold on October 31, 2002.

maintained. With this approach, a company can easily determine realized and unrealized gains. Perhaps the most important reason for keeping a record of historical cost is that, for tax purposes, only realized gains and losses are relevant. Other decisions made within a firm also rely on this historical cost information.

In Chapter 7, we were not to write inventory up if its value increased, though we were to write it down if its value declined. In Chapter 9, we were not to write property, plant, and equipment up if its value increased, though we were to write it down if its value declined. Why can we write up the value of securities if their price increases above the original cost?

## Changes in the Value of Available-for-Sale Securities

A market adjustment account is also employed when adjusting available-for-sale securities to their fair market value. However, the change in value is not recorded on the income statement but is instead recorded in the account "Unrealized Increase/Decrease in Value of Available-for-Sale Securities—Equity." The "equity" used in the account title refers to the fact that this account is disclosed in the stockholders' equity section of the balance sheet, and its balance is carried forward from year to year. To illustrate, the available-for-sale portfolio of Far Side has a fair market value of $25,950 at year-end and a historical cost of $26,200. The appropriate adjustment is:

| | | |
|---|---|---|
| Unrealized Increase/Decrease in Value of Available-for-Sale Securities—Equity | 250 | |
| Market Adjustment—Available-for-Sale Securities | | 250 |

This journal entry adjusts the portfolio of available-for-sale securities to its fair market value at year-end and records the difference in the equity account.

## Subsequent Changes in Value

Assume that no securities were bought or sold by Far Side, Inc., during 2003. At the end of 2003, its portfolio of securities had the following fair market values:

| Security | Classification | Historical Cost | Market Value (December 31, 2003) |
|---|---|---|---|
| 1 | Trading | $ 5,000 | $ 4,850 |
| 3 | Available-for-sale | 17,000 | 16,900 |
| 4 | Available-for-sale | 9,200 | 9,150 |

The value of the trading securities has declined to $4,850. Since the market adjustment account relating to trading securities should reflect the difference between historical cost and market, an entry is made to adjust the balance in Market Adjustment—Trading Securities from its previous $200 debit balance to the required $150 credit balance ($5,000 − $4,850). Where did this $200 debit balance come from? It came from the adjusting entry made on December 31, 2002. Remember that the market adjustment account is a real (balance sheet) account and is not closed at the end of an accounting period. Its balance carries forward from year to year. The required adjusting entry is:

| | | |
|---|---|---|
| Unrealized Loss on Trading Securities—Income | 350 | |
| Market Adjustment—Trading Securities | | 350 |

When this entry is posted, the Market Adjustment—Trading Securities T-account will appear as follows:

**Market Adjustment—Trading Securities**

| | | | |
|---|---|---|---|
| 12/31/02 | 200 | | |
| | | Adjustment | 350 |
| | | 12/31/03 | 150 |

**caution**

The amount of the adjustment for the current period depends on the balance in the market adjustment account. Don't forget to factor that balance into your calculations.

The $150 credit balance will be netted against the $5,000 balance in the trading securities account and disclosed on the balance sheet as "Investment in Trading Securities (net)" for $4,850. The $350 unrealized loss will be included in the current period's net income and reported on the income statement. This adjustment procedure ensures that changes in the value of the trading securities portfolio are reflected in the period in which those changes in value occurred.

A similar procedure is employed in valuing the available-for-sale securities portfolio, except that the stockholders' equity account is used instead of the income statement account. For Far Side, the market value of the available-for-sale securities portfolio is $26,050. In comparing this to the historical cost of $26,200, a $150 credit balance in the market adjustment account is required. Take a moment and read the information again. An adjustment *to* get to a $150 credit balance is required—not an adjustment *of* $150. Given the previous credit balance in Market Adjustment—Available-for-Sale Securities of $250, the following adjusting entry is required:

| | | |
|---|---|---|
| Market Adjustment—Available-for-Sale Securities | 100 | |
| Unrealized Increase/Decrease in Value of Available-for-Sale Securities—Equity | | 100 |

Once this entry is posted, Market Adjustment—Available-for-Sale Securities will have the required $150 credit balance as follows:

**Market Adjustment—Available-for-Sale Securities**

| | | | |
|---|---|---|---|
| | | 12/31/02 | 250 |
| Adjustment | 100 | | |
| | | 12/31/03 | 150 |

When individual securities from a portfolio are sold, a realized gain or loss is recognized for the difference between the original cost of the securities and the selling price, without regard to previous adjustments made to a market adjustment account. At the end of the period, the cost of the remaining securities is compared to the fair market value of the remaining securities, and the market adjustment account is updated to account for the difference.

As mentioned earlier, **BERKSHIRE HATHAWAY** classifies all of its securities as available-for-sale. To determine how well Warren Buffett has managed the portfolio during the year, the financial statement reader must review both the income statement and the statement of stockholders' equity. Comparing the performance of the company's portfolio of securities for the years 1997 through 1999 results in the following (in millions):

| | 1997 | 1998 | 1999 |
|---|---|---|---|
| Realized investment gains (from the income statement) | $ 1,106 | $2,415 | $1,365 |
| Unrealized appreciation of investments (from the statement of shareholders' equity) | 10,574 | 3,011 | (795) |
| Total portfolio performance | $11,680 | $5,426 | $ 570 |

This declining performance, particularly in 1999, prompted Mr. Buffett to state the following in his 1999 letter to shareholders:

> The numbers ... show just how poor our 1999 record was. We had the worst absolute performance of my tenure and, compared to the S&P, the worst relative performance as well. Relative results are what concern us: Over time, bad relative numbers will produce unsatisfactory absolute results. Even Inspector Clouseau could find last year's guilty party: your Chairman.

## to summarize

When the value of a trading or available-for-sale security changes, that change is reflected on the balance sheet using a market adjustment account. For trading securities, the unrealized gain or loss is reflected on the income statement for the period. For available-for-sale securities, the unrealized increase or decrease is recorded in a stockholders' equity account.

## expanded material

**In this section of the chapter, we turn our attention to some of the complexities associated with purchasing debt and equity securities. First, we examine held-to-maturity securities and how any associated premium or discount associated with these securities is amortized. We also address the issue of purchasing a debt security between interest payment dates. The accounting issues associated with an equity security accounted for under the equity method are also presented.**

**5**
Account for held-to-maturity securities.

## ACCOUNTING FOR HELD-TO-MATURITY SECURITIES

Held-to-maturity securities are debt securities issued by companies to raise needed funding for expansion, acquisitions, or other business reasons. Bonds (discussed in Chapter 10 from the point of view of the issuer) are by far the most common type of debt instrument that can be readily bought and sold. Because bonds represent the most common type of publicly traded debt instrument, the following discussion will focus on bonds purchased as investments to be held to maturity.

### Accounting for the Initial Purchase

Bonds can be purchased at amounts either above face value (at a premium), below face value (at a discount), or at face value. Regardless of the purchase price, like all other assets, bonds are initially recorded at cost. The cost is the total amount paid to acquire the bonds; this includes the actual price paid for the bonds and any other purchasing expenditures, such as commissions or broker's fees.

To illustrate, assume that Far Side, Inc., purchased a fifth security and classified it as held-to-maturity. Security 5 consists of twenty $1,000 bonds of Chicago Company. The bonds were issued

on July 1, 2002, and will mature five years from the date of issuance. The bonds will pay interest at a stated annual rate of 12%, with payments to be made semiannually on June 30 and December 31. In determining the value of the bonds, the present value of these future cash flows must be determined at the market rate on the date of the purchase. Assuming the market rate on bonds of similar risk is 16%, the purchase price of the bonds is obtained by adding the present value of $20,000 (received 10 periods in the future and discounted at 8%) to the present value of the annuity of the 10 interest payments of $1,200 each (discounted at 8%). The reason 8% is used is that interest is received semiannually; recall that in calculating present value, you must halve the interest rate (16%/2) for semiannual compounding periods. Likewise, you must double the number of years to determine the number of periods (5 years × 2 periods per year = 10 periods). The calculations are:

| | | | |
|---|---|---|---|
| 1. | Semiannual interest payment | $ 1,200 | |
| | Present value of an annuity of 10 payments of $1 at 8% (Table II, page 484) | × 6.7101 | |
| | Present value of interest payments | | $ 8,052 |
| 2. | Principal (face value) of bonds | $20,000 | |
| | Present value of $1 received 10 periods in the future discounted at 8% (Table I, page 483) | × 0.4632 | |
| | Present value of principal | | 9,264 |
| 3. | Total present value of investment | | $17,316 |

In this example, 16% is the effective rate of interest because that is the amount of interest actually earned; 12% is the stated, or nominal, rate of interest on Chicago Company's bonds. Note that the 12% stated rate determines the size of the annuity payments ($20,000 × 0.12 × ½ year) but not the purchase price of the bonds; the purchase price varies according to market conditions. The 16% effective rate depends on three amounts: the purchase price, the interest payments, and the face value of the bonds. The $17,316 bond price is the amount that earns Far Side exactly 16%. The journal entry to record the acquisition is:

| | | |
|---|---|---|
| Investment in Held-to-Maturity Securities | 17,316 | |
| Cash | | 17,316 |

Note that the investment account is debited for the cost of the bonds with no separate amount shown for the discount of $2,684 ($20,000 − $17,316). Although the discount could be recorded in a separate contra-asset account, in practice it is more common for investors to record the asset cost in the investment account as shown.

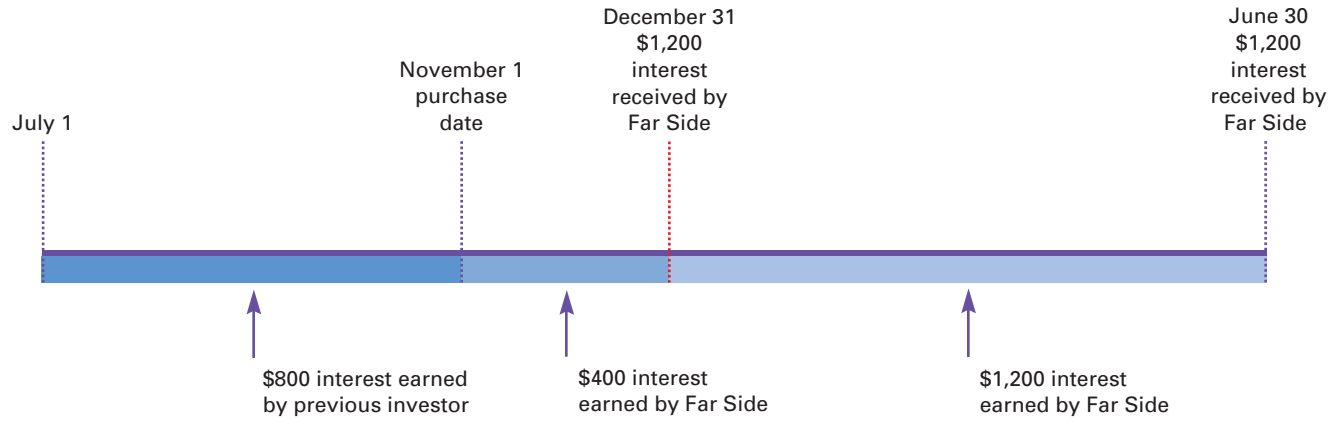
## Accounting for Bonds Purchased between Interest Dates

The preceding entry assumes that the investing company purchased the bonds on the issuance date, which was also the beginning date for the first interest period. In many cases, however, the date bonds are actually issued does not coincide with an interest date. Further, investors often acquire bonds in the "secondary market"; that is, they purchase bonds from other investors rather than from the issuing company. The secondary market for bonds includes the New York Bond Exchange and the over-the-counter bond market as described in the Business Environment Essay on page 580. Since bonds are traded actively in this market each weekday, investors often acquire bonds between interest dates.

An investor who buys bonds between interest dates, either from the issuing company or in the secondary market, has to pay for the interest that has accrued since the last interest payment date. As explained in Chapter 10, this is necessary because whoever owns the bonds at the time interest is paid receives interest for one full interest period, usually six months, regardless of how long the bonds have been held.

To illustrate, we will assume that Far Side purchased the Chicago Company bonds in the secondary market for $17,316 on November 1, 2002. Semiannual interest of $1,200 ($20,000 × 0.12 × ½) is paid on the bonds on June 30 and December 31 of each year. On December 31, 2002, Far Side will receive $1,200 even though the bonds were purchased only two months

**exhibit 12-7** Investing between Interest Dates




earlier. Since the previous owner is entitled to 4 months' interest on November 1, Far Side will have to pay that individual or company the interest for the period July 1 to October 31. This is illustrated in Exhibit 12-7.

The entry to record the investment in bonds on November 1 (between interest dates) is:

| | | |
|---|---|---|
| Investment in Held-to-Maturity Securities | 17,316 | |
| Bond Interest Receivable | 800 | |
| Cash | | 18,116 |
| *Purchased $20,000 of Chicago Company bonds for $17,316 and paid four months' accrued interest.* | | |

When Far Side receives $1,200 in interest on December 31, it will make the following entry:

| | | |
|---|---|---|
| Cash | 1,200 | |
| Interest Receivable | | 800 |
| Interest Revenue | | 400 |
| *Received interest on Chicago Company bonds.* | | |

## Accounting for the Amortization of Bond Discounts and Premiums

Only in those rare instances when the stated interest rate of a bond is exactly equivalent to the prevailing market (or yield) rate for similar investments is a bond purchased at face value. At all other times, bonds are purchased either at a discount (below face value) or at a premium (above face value). Because the face amount of a bond is received at maturity, discounts and premiums must be written off (amortized) over the period that a bond is held.

As you learned in Chapter 10, there are two common methods of amortizing bond discounts and premiums: the straight-line method and the effective-interest method. Because straight-line amortization is simpler, it will be used first to illustrate the amortization process; then the effective-interest method will be described.

**straight-line amortization** A method of systematically writing off a bond discount or premium in equal amounts each period until maturity.

**STRAIGHT-LINE AMORTIZATION** To illustrate the **straight-line amortization** of a bond discount, we will assume again that Far Side purchased the Chicago Company $20,000, 12%, five-year bonds for $17,316 on the issuance date, July 1, 2002. The entry to record this investment was given on page 585. Far Side will record amortization of $268.40 ($2,684/5 years × ½) on each interest date. Thus, every six months, beginning on December 31, 2002, Far Side will make the following entry:

| | | |
|---|---|---|
| Cash | 1,200.00 | |
| Investment in Held-to-Maturity Securities | 268.40 | |
| Bond Interest Revenue | | 1,468.40 |
| *Received semiannual bond interest and amortized bond discount.* | | |

At the end of five years, the investment in the held-to-maturity securities account will have a balance of $20,000.

The discount amortization is revenue earned on the bonds; when the bonds mature, Far Side will receive $20,000 (the face value) in return for an original investment of $17,316. It is this additional revenue of $2,684 that increases the return the investor actually earns from the 12% stated interest rate to the effective interest rate of 16%. The following analysis shows how this works:

| | |
|---|---|
| Maturity value to be received | $20,000 |
| Interest to be received ($1,200 × 10 payments) | 12,000 |
| Total amount to be received | $32,000 |
| Investment | 17,316 |
| Total interest revenue to be earned | $14,684 |

Interest earned per year:

| | | |
|---|---|---|
| Stated amount of interest ($20,000 × 0.12) | $2,400.00 | 12% |
| Additional interest from discount ($2,684/5 years) | 536.80 | 4%* |
| Total | $2,936.80 | 16% |

*This is an approximation; with the straight-line method, the actual interest earned each year changes.

When accounting for the amortization of a bond discount, a company must be careful to amortize the discount only over the period the bonds are actually held. For example, if Far Side had purchased the Chicago Company bonds four months after the issuance date, the discount would have been amortized over a period of 56 months (4 full years plus 8 months of the first year). The amortization for the first year would then have been approximately $383.43 ($2,684 × $^{8}/_{56}$), and the amortization for each of the succeeding four years would be approximately $575.14 ($2,684 × $^{12}/_{56}$).

Accounting for the amortization of a premium on investments is essentially the opposite of accounting for a discount. Amortization of a premium decreases revenue earned, and the effect of the amortization entry is to reduce Investment in Held-to-Maturity Securities to the face value of the bonds by the maturity date.

To illustrate the amortization of a bond premium by the investor, assume that Far Side acquired the $20,000, 12%, five-year Chicago Company bonds for $21,540 on July 1, 2002, the date of issuance. The entry to record the purchase is:

| | | |
|---|---|---|
| Investment in Held-to-Maturity Securities | 21,540 | |
| Cash | | 21,540 |
| *Purchased $20,000 of Chicago Company bonds for $21,540.* | | |

At each interest payment date, beginning December 31, 2002, Far Side will make the following entry:

| | | |
|---|---|---|
| Cash | 1,200 | |
| Investment in Held-to-Maturity Securities | | 154 |
| Bond Interest Revenue | | 1,046 |
| *Received semiannual bond interest and amortized bond premium ($1,540/5 years × ½).* | | |

The effect of the amortization entries is to reduce the return earned on the bonds from the stated annual interest rate of 12% to the rate actually earned on the investment (approximately 10%).

**effective-interest amortization** A method of systematically writing off a bond premium or discount that takes into consideration the time value of money and results in an equal rate of amortization for each period.

**EFFECTIVE-INTEREST AMORTIZATION** To illustrate the computations involved in using the **effective-interest amortization** method, we will again consider Far Side's purchase of the 12%, five-year, $20,000 bonds of Chicago Company for $17,316 on the issuance date. The amount of discount amortized in each of the five years using the effective-interest method is computed as shown in Exhibit 12-8.

In the computation, column (2) represents the cash received at the end of each interest period; column (3) shows the amount of effective interest earned, which is the amount that will be reported on the income statement each period; column (4) is the difference between columns (3) and (2) and so represents the amortization; and column (5) shows the investment balance that will be reported on the balance sheet at the end of each period. Note that the interest rate used to compute the actual interest earned is the effective rate of 8% (16%/2) and not the stated rate of 12%. Also note that the total discount is the same as it was when the straight-line method was used, $2,684.

**fyi**

Note the similarities between this table and the amortization tables prepared in Chapter 10. The computations are identical—the only difference is that in Chapter 10, we were paying cash, whereas in Chapter 12, we are receiving cash.

When bonds are purchased at a discount, the amount of amortization increases each successive period. This is so because the investment balance of the bonds increases, and a constant interest rate times an increasing balance results in an increasing amount of interest income. If bonds are purchased at a premium, the effective-interest amortization method will involve a constant interest rate being multiplied by a declining investment balance each period. The result will be a decline in actual interest earned each period.

Since the effective-interest amortization method takes into account the time value of money, and thus shows the true revenue earned each period (whereas the straight-line method represents only approximations), companies normally should use the effective-interest amortization method. As an exception to this rule, companies are allowed to use the straight-line method when the two methods produce amortization amounts that are not significantly different. Because that is often the case, both methods continue to be used.

**exhibit 12-8** Amortization Table for Chicago Company Bonds

| (1) Time Period | (2) Cash Received | (3) Interest Actually Earned (0.16 x ½ × Investment Balance) | (4) Amount of Amortization (3) − (2) | (5) Investment Balance |
|---|---|---|---|---|
| Acquisition date | | | | $17,316 |
| Year 1, first six months | $1,200 | (0.08 × $17,316) = $1,385 | $ 185 | 17,501 |
| Year 1, second six months | 1,200 | (0.08 × $17,501) = 1,400 | 200 | 17,701 |
| Year 2, first six months | 1,200 | (0.08 × $17,701) = 1,416 | 216 | 17,917 |
| Year 2, second six months | 1,200 | (0.08 × $17,917) = 1,433 | 233 | 18,150 |
| Year 3, first six months | 1,200 | (0.08 × $18,150) = 1,452 | 252 | 18,402 |
| Year 3, second six months | 1,200 | (0.08 × $18,402) = 1,472 | 272 | 18,674 |
| Year 4, first six months | 1,200 | (0.08 × $18,674) = 1,494 | 294 | 18,968 |
| Year 4, second six months | 1,200 | (0.08 × $18,968) = 1,517 | 317 | 19,285 |
| Year 5, first six months | 1,200 | (0.08 × $19,285) = 1,543 | 343 | 19,628 |
| Year 5, second six months | 1,200 | (0.08 × $19,628) = 1,572* | 372 | 20,000 |
| | | | $2,684 | |

*Difference due to rounding.

## Accounting for the Sale or Maturity of Bond Investments

If bonds are held until their maturity date, the accounting for the proceeds at maturity includes a debit to Cash and a credit to the investment account for the principal amount. For example, if Far Side, Inc., holds the $20,000, 12% bonds from Chicago Company to maturity, the entry to record the receipt of the bond principal on the maturity date will be:

| | | |
|---|---|---|
| Cash | 20,000 | |
| Investment in Held-to-Maturity Securities | | 20,000 |
| *Received the principal of Chicago Company bonds at maturity.* | | |

This entry assumes, of course, that all previous receipts of interest and bond amortizations have been properly recorded.

Because held-to-maturity securities are usually traded on major exchanges, thus providing a continuous and ready market, they can be sold to other investors prior to their maturity. When these securities are sold prior to their maturity, the difference between the sales price and the investment balance is recognized as a gain or loss on the sale of the investment.

To illustrate, we will assume that Sawyer Company purchased ten $1,000, 8%, five-year bonds of REX Company. We will also assume that the bonds were originally purchased on January 1, 2002, at 101% of their face value; on January 1, 2003, Sawyer showed a balance of $10,040 for these bonds. If the bonds are sold on that day for $10,300, the entry to record the sale and recognize the gain is (assuming no sales commission):

| | | |
|---|---|---|
| Cash | 10,300 | |
| Gain on Sale of Bonds | | 260 |
| Investment in Held-to-Maturity Securities | | 10,040 |
| *Sold the REX bonds for $10,300.* | | |

If held-to-maturity securities are sold prior to their maturity date, it is important that the amortization of the bond premium or discount be recorded up to the date of sale. If the amortization of the discount or premium is not updated, the gain or loss recognized on the sale will be incorrect.

## to summarize

Accounting for investments in held-to-maturity securities involves four steps: (1) accounting for the purchase of the securities, (2) accounting for interest received on the securities, (3) accounting for amortization of the premium or discount, and (4) accounting for the sale or maturity of the securities. Amortization of premiums and discounts is usually accounted for by the simple straight-line amortization method or the theoretically more correct effective-interest method. The amortization adjusts the interest earned on the bonds from the stated to the effective rate. Investments in held-to-maturity securities are generally reported at cost (adjusted for premium or discount amortization), regardless of whether the current market value is less than or greater than their historical cost. When held-to-maturity securities are sold before maturity, the premium or discount must be amortized to the date of sale; a gain or loss would be reflected in the income statement for the difference between the selling price and the carrying value on the date of sale. Debt securities held until maturity result in no gain or loss on retirement because the carrying value after amortization of a premium or discount should be equal to the face value of the securities.

**6**
Account for securities using the equity method.

## ACCOUNTING FOR EQUITY INVESTMENTS USING THE EQUITY METHOD

When enough of the outstanding common stock of a company is purchased by another company, the acquiring company may have the ability to significantly influence the operating decisions of the investee. If the ability to influence is present, then accounting standards require the use of the equity method in accounting for the investment. As stated previously, significant influence is presumed if a company owns between 20 and 50% of a company. Keep in mind that the percentage ownership criterion serves only as a guideline. The ability to influence is the key criterion. For example, assume that a company owns 35% of a firm that is headquartered in a foreign country whose government is undergoing a period of volatility. Some of the radical leaders in that country are calling for more internal investment and less outside interference from U.S. corporations. These leaders, if able to gain positions of power, have threatened to expropriate (take over all operations owned by U.S. companies). Even though the U.S. company meets the percentage ownership criterion, it may not be able to significantly influence the operations of the foreign subsidiary. Consider another example of a firm whose ownership is widespread, with no single shareholder owning more than 2% of the corporation. If one stockholder were able to acquire 15% of the outstanding common stock, that investor might be able to influence the decisions of the investee simply because of the size of the ownership percentage relative to that of all other stockholders. The important point is that the ability to influence is the key criterion for using the equity method of accounting.

Under the equity method, dividend payments represent a return of investment; they do not represent revenue, as they do when accounting for trading or available-for-sale securities. Revenue is recognized when the investee company has earnings. When earnings are announced, the carrying (book) value of the investment is increased because the investor owns a fixed percentage of a company that is worth more now than it was when the investment was originally made.

**fyi**

Although temporary changes in the value of equity method securities are not accounted for, permanent changes are recognized. This treatment is consistent with the concept of asset impairment discussed in Chapter 9.

In accounting for investments with the equity method, the original investment is first recorded on the books at cost and is subsequently modified to reflect the investor's share of the investee's reported income, losses, and dividends. In this way, book value is increased to recognize the investor's share of earnings and decreased by the dividends received or to recognize the investor's share of losses. Temporary changes in value of investments accounted for using the equity method are not recorded.

There are two reasons why the procedures employed under the equity method are preferred over those used when accounting for trading or available-for-sale securities. First, the equity method assumes that significant influence can be exerted. Thus, the accounting procedures prevent the investing company from manipulating earnings by dictating the dividend policy of the investee. For a trading or available-for-sale security, where dividend payments are reported as revenue, an influential investor could increase its income by putting pressure on the investee to pay larger and more frequent dividends. With the equity method, dividends do not affect earnings. Second, the equity method provides more timely recognition of the investee's earnings and losses than do the procedures employed for trading or available-for-sale securities.

**caution**

A common mistake in accounting for equity method securities is to debit or credit the investment account for the entire amount of the investee's income or dividends. Remember, the investor accounts only for its share of the investee's income and dividends.

### Illustrating the Equity Method

To illustrate the accounting for the equity method, we will use the following information: Kimball, Inc. purchases 20% (2,000 shares) of Holland Enterprises outstanding common stock (10,000 shares), paying $100 per share. Later in the year, Kimball receives a dividend of $2.50 per share; at year-end Kimball receives Holland's income statement showing that the company earned $50,000 for the year. To ensure that you understand how the equity method differs from the accounting demonstrated earlier in the chapter, we will proceed with two scenarios: (1) Kimball is not able to exercise significant influence on Holland and, as a result, classifies the security as available-for-sale, and (2) Kimball is able to exercise significant influence and uses the equity method. The accounting for this purchase of stock and subsequent events is shown in Exhibit 12-9. Column 1 shows the journal entries as-

**exhibit 12-9** Accounting for Equity Securities

| | (1) Available-for-Sale Security | | | (2) Equity Method Security | | |
|---|---|---|---|---|---|---|
| Accounting for the initial purchase of the stock | Investment in Available-for-Sale Securities | 200,000 | | Investment in Equity Method Securities | 200,000 | |
| | Cash | | 200,000 | Cash | | 200,000 |
| Payment of a $2.50 per share dividend by Holland Company | Cash | 5,000 | | Cash | 5,000 | |
| | Dividend Revenue | | 5,000 | Investment in Equity Method Securities | | 5,000 |
| Announcement by Holland of net income for the year of $50,000 | No entry | | | Investment in Equity Method Securities | 10,000 | |
| | | | | Revenue from Investments | | 10,000 |
| Holland stock is selling at $102 per share at year-end | Market Adjustment—Available-for-Sale Securities | 4,000 | | No entry | | |
| | Unrealized Increase in Available-for-Sale Securities—Equity | | 4,000 | | | |

suming that the Holland stock is considered an available-for-sale security. Column 2 illustrates the equity method. It is assumed that the Holland stock is selling for $102 per share at year-end.

Although accounting for the holding of equity method securities is different from the accounting for available-for-sale or trading securities, accounting for the sale of a stock investment is the same regardless of the classification. If the selling price exceeds the balance in the investment account, the difference is recognized as a gain. If the selling price is less than the recorded investment balance, the difference is recognized as a loss. To illustrate, assume that Kimball sells its 2,000 shares of Holland Enterprises stock (previously accounted for under the equity method) for $225,000 shortly after the year-end recognition of its $10,000 share of Holland's earnings. The entry to record the sale is:

| | | |
|---|---|---|
| Cash | 225,000 | |
| Investment in Equity Method Securities | | 205,000 |
| Realized Gain on Sale of Investment | | 20,000 |

The $205,000 is obtained by adding Kimball's share of Holland's reported net income to the original investment cost and subtracting the dividends received from Holland ($200,000 + $10,000 − $5,000).

**fyi**

**COCA-COLA**, a company in which **BERKSHIRE HATHAWAY** owns over 8%, has a number of subsidiaries that it accounts for using the equity method. In 1999, Coca-Cola reported equity income from those subsidiaries of a negative $184 million accounted for using the equity method.

## to summarize

All investments in stock are initially accounted for at cost. However, because different levels of investment provide different degrees of influence over investee companies, accounting for subsequent events relating to the investee will differ depending on the degree of influence. When the percentage of outstanding voting common stock owned is sufficient to exercise influence (as is usually true with ownership of 20 to 50%), the equity method is used. This method involves increasing the book value of the investment for earnings and decreasing it for dividends and losses.

# review of learning objectives

**1 Understand why companies invest in other companies.** Companies invest in the debt and equity securities of other companies for a variety of reasons. The primary reason is to earn a return on invested funds. Bonds and stocks offer a higher potential return for investors than the interest rates offered by government-backed securities or savings rates offered by banks and other financial institutions. Along with the potential for higher returns comes the prospect of higher risks; the investor faces the possibility of earning little return or even losing money. Besides earning a return, companies invest in the securities of other companies for additional reasons, including establishing a long-term business relationship, ensuring an adequate supply of raw materials, ensuring a sales network for inventory, or gaining access to developed assets, such as software programs or oil reserves.

**2 Understand the different classifications for securities.** Debt and equity securities are classified according to management's intent in holding the securities. If the securities are being held for the short term with the intent to sell the securities if cash is needed, the securities are accounted for as "trading" securities. If debt securities are expected to be held until they mature, the securities are classified as "held-to-maturity." If equity securities are purchased with the intent of being able to significantly influence the operating decisions of the investee (ownership of between 20 and 50% of outstanding common stock typically reflects the ability to significantly influence), the securities are accounted for using the equity method. Debt and equity securities not classified as trading, held-to-maturity, or equity method securities are classified as "available-for-sale." The importance of these distinctions becomes clear when changes in the value of the securities are accounted for by the investor.

**3 Account for the purchase, recognition of revenue, and sale of trading and available-for-sale securities.** Investments in securities are initially recorded at cost. Cost includes the fair market value of the securities as well as broker's fees. For trading and available-for-sale securities, dividends or interest earned is recorded as revenue. For held-to-maturity securities and equity method securities, the recognition of revenue is more complex. When a security is sold, regardless of its classification, its carrying (book) value is compared to the selling price to determine any realized gain or loss on the sale. These realized gains and losses are disclosed on the income statement with Other Revenues and Expenses.

**4 Account for changes in the value of securities.** When the market value of a security changes, the classification of the security determines whether the change in value is recorded on the financial statements. With held-to-maturity securities and equity method securities, because the intent of management is to hold these types of securities for long periods of time, changes in market value are not recognized. For securities classified as trading, any unrealized gains and losses are recognized on the income statement. A market adjustment account is offset against Investment in Trading Securities to value the securities at their fair market value on the balance sheet. Available-for-sale securities are also adjusted to fair market value using a market adjustment account. However, the offset is recorded in a stockholders' equity account.

## expanded material

**5 Account for held-to-maturity securities.** The purchase price of a held-to-maturity security may be less than face value, resulting in a discount, or it may be more than face value, resulting in a premium. The discount or premium is amortized over the life of the bond by adjusting the cost upward if purchased at a discount and downward if purchased at a premium. Adjusting the cost of the bond up or down ensures that the recorded cost will be equal to the face value of the bond at the maturity date. This adjustment is accomplished through the amortization of the premiums and discounts, which adjusts the interest earned on the bonds from the stated to the effective rate. Bond discounts and premiums can be amortized using either the straight-line or the effective-interest method. The latter is theoretically more correct, but if the differences between the two are insignificant, either can be used.

**6 Account for securities using the equity method.** If ownership of the outstanding stock of another company gives the investor the ability to significantly influence the company (as generally happens with 20 to 50% ownership), the equity method is used to account for the investment. With the equity method, the purchase is recorded at cost. The investment balance (its book value) is decreased by dividends and losses and increased by the investor's share of the investee company's earnings.

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## review problem

**Investments in Debt and Equity Securities**

On January 1, 2003, Schultz, Inc., purchased the following securities:

| Security | Type | Classification | Cost |
|---|---|---|---|
| 1 | Debt | Trading | $2,500 |
| 2 | Debt | Trading | 1,500 |
| 3 | Equity | Trading | 1,750 |
| 4 | Debt | Available-for-sale | 4,300 |
| 5 | Equity | Available-for-sale | 2,750 |

On March 31, one-half of Security 2 was sold for $900. During the year, interest and dividends were received as follows:

| Security | Interest | Dividends |
|---|---|---|
| 1 | $200 | |
| 2 | 85 | |
| 3 | | none |
| 4 | 435 | |
| 5 | | $200 |

The following fair market values are available on December 31, 2003. Schultz had no balance in its market adjustment accounts on January 1, 2003.

| Security | Market Value |
|---|---|
| 1 | $2,400 |
| 2 | 950 |
| 3 | 1,600 |
| 4 | 4,250 |
| 5 | 2,900 |

*Required:* Record all necessary journal entries to account for these investments during 2003.

**Solution** To account for these investments, four events must be accounted for:

1. The initial purchase on January 1.
2. The sale of one-half of Security 2 on March 31.
3. The receipt of interest and dividends during the year.
4. The changes in value as of December 31.

**The initial purchase**

| | | | |
|---|---|---|---|
| Jan. 1 | Investment in Trading Securities | 5,750 | |
| | Investment in Available-for-Sale Securities | 7,050 | |
| | Cash | | 12,800 |
| | *To record the purchase of trading and available-for-sale securities.* | | |

**The sale of one-half of Security 2 on March 31**

| | | | |
|---|---|---|---|
| Mar. 31 | Cash | 900 | |
| | Realized Gain on Sale of Securities | | 150 |
| | Investment in Trading Securities | | 750 |
| | *Sold one-half of Security 2 ($750 book value) for $900.* | | |
| | *Recorded the $150 realized gain ($900 − $750).* | | |

**The receipt of interest and dividends during the year**

| | | | |
|---|---|---|---|
| | Cash | 920 | |
| | Interest Revenue | | 720 |
| | Dividend Revenue | | 200 |
| | *Received $720 in interest during the year and $200 in dividends.* | | |

*Note:* Even if cash were not received by year-end, the interest and dividends earned would need to be recorded, with the offsetting debit to a receivable account(s).

**The changes in value as of December 31, 2003**

| | | | |
|---|---|---|---|
| Dec. 31 | Unrealized Loss on Trading Securities | 50 | |
| | Market Adjustment—Trading Securities | | 50 |
| | *To account for the difference between book value ($5,000) and fair market value ($4,950) of trading securities.* | | |

*Note:* Remember that one-half of Security 2 was sold during the year.

| | | | |
|---|---|---|---|
| Dec. 31 | Market Adjustment—Available-for-Sale Securities | 100 | |
| | Unrealized Increase/Decrease in Value of Available-for-Sale Securities—Equity | | 100 |
| | *To account for the difference between book value ($7,050) and fair market value ($7,150) of available-for-sale securities.* | | |

## discussion questions

1. Why do firms invest in assets that are not directly related to their primary business operations?
2. Describe the risk and return trade-off of investments.
3. What are the four different classifications of debt and equity securities?
4. When will a security be classified as "trading"?
5. What types of securities can be classified as "held-to-maturity"?
6. To be classified as an equity method security, the investor must typically own at least a certain percentage of the outstanding common stock of the investee. What is that minimum percentage? That percentage of ownership represents the investor's ability to do what?
7. Identify the different types of returns an investor can realize when investing in debt and equity securities.
8. When a security is sold, what information must be known to account for that transaction?
9. What is the difference between a realized gain or loss and an unrealized gain or loss?
10. What does the account "Market Adjustment" represent?
11. How are changes in the value of trading securities accounted for on the books of the investor?
12. How are changes in the value of available-for-sale securities accounted for on the books of the investor?
13. What is the process for adjusting the value of a trading or available-for-sale security after a valuation account has been established?

14. Why aren't premiums and discounts on available-for-sale securities amortized?
15. Why aren't changes in the value of held-to-maturity and equity method securities accounted for on the books of the investor?
16. How does the accounting for changes in the value of trading and available-for-sale securities differ?

expanded material

17. What future cash inflows is a company buying when it purchases a held-to-maturity security?
18. When would a company be willing to pay more than the face amount (a premium) for a held-to-maturity security?
19. Why does the amortization of a discount increase the amount of interest revenue earned on a held-to-maturity security?
20. Why must an investor purchasing held-to-maturity securities between interest payment dates pay the previous owner for accrued interest on those securities?
21. Why is the effective-interest amortization method theoretically superior to the straight-line method?
22. What is the key criterion for using the equity method of accounting for equity securities?
23. What guidelines have been provided to determine if the ability to significantly influence the decisions of an investee exists?
24. How does the equity method of accounting for securities differ from the procedures employed for a trading security?

## discussion cases

### CASE 12-1 WHICH INVESTMENT SHOULD WE MAKE?

Pentron Data Corporation has a significant amount of excess cash on hand and has decided to make a long-term investment in either debt or equity securities. After a careful analysis, the investment committee has recommended to the company treasurer that Pentron purchase either one of the following two investments. The first investment involves purchasing sixty $1,000, 8% bonds issued by the Andrea Company. The bonds mature in four years, pay interest semiannually, and are currently selling at 92. The second investment alternative involves purchasing 3,000 shares of Franklin Corporation common stock at $30 per share (including brokerage fees). The investment committee believes that the Franklin stock will pay an annual dividend of $3.50 per share and is likely to be salable at the end of four years for $36 per share.

Discuss the following questions:

1. If Pentron wants to earn 12% per year, should it make either investment?
2. Which of the two investments would you advise the treasurer to invest in assuming the inherent risk is approximately equal? Your decision should be based on which investment provides the more attractive return, ignoring income tax effects.

### CASE 12-2 CLASSIFICATION OF SECURITIES

Memphis Company has just purchased five securities; it intends to hold the stock until the price increases to a sufficiently high level, at which time it plans to sell the stock. In fact, it is unlikely that the company will hold the securities for more than a few months. Nevertheless, Memphis's management has decided to classify the securities as available-for-sale rather than as trading securities. Why is Memphis choosing this type of classification, and would you allow it if you were the auditor?

# exercises

## EXERCISE 12-1 INVESTMENT IN TRADING SECURITIES—JOURNAL ENTRIES

Prepare the journal entries to account for the following investment transactions of Clyde Company:

2002

| | | |
|---|---|---|
| July | 1 | Purchased 200 shares of Nickle Company stock at $36 per share plus a brokerage fee of $450. The Nickle stock is classified as trading. |
| Oct. | 31 | Received a cash dividend of $1.50 per share on the Nickle Company stock. |
| Dec. | 31 | At year-end, Nickle Company stock had a market price of $33 per share. |

2003

| | | |
|---|---|---|
| Feb. | 20 | Sold 100 shares of the Nickle Company stock for $37 per share. |
| Oct. | 31 | Received a cash dividend of $1.70 per share on the Nickle Company stock. |
| Dec. | 31 | At year-end, Nickle Company stock had a market price of $39 per share. |

## EXERCISE 12-2 INVESTMENT IN TRADING SECURITIES—JOURNAL ENTRIES

In June 2003, Hatch Company had no investment securities but had excess cash that would not be needed for nine months. Management decided to use this money to purchase trading securities as a short-term investment. The following transactions relate to the investments:

| | | |
|---|---|---|
| July | 16 | Purchased 4,000 shares of Eli Corporation stock. The price paid, including brokerage fees, was $41,880. |
| Sep. | 23 | Received a cash dividend of $0.90 per share on the Eli stock. |
| | 28 | Sold 2,000 shares of Eli Corporation stock at $11 per share. Paid a selling commission of $160. |
| Dec. | 31 | The market value of Eli's stock was $11.25 per share. |

Given these data, prepare the journal entries to account for Hatch's investment in Eli Corporation stock.

## EXERCISE 12-3 INVESTMENT IN AVAILABLE-FOR-SALE SECURITIES—JOURNAL ENTRIES

Wishbone Corporation made the following available-for-sale securities transactions:

| | | |
|---|---|---|
| Jan. | 14 | Purchased 2,000 shares of Clarke Corporation common stock at $31.60 per share. |
| Mar. | 31 | Received a cash dividend of $0.30 per share on the Clarke Corporation stock. |
| Aug. | 28 | Sold 800 shares of Clarke Corporation stock at $37.50 per share. |
| Dec. | 31 | The market value of the Clarke Corporation stock was $36 per share. |

Prepare journal entries to record the transactions.

## EXERCISE 12-4 INVESTMENT IN SECURITIES

In January 2001, Solitron, Inc., determined that it had excess cash on hand and decided to invest in Horner Company stock. The company intends to hold the stock for a period of three to five years, thereby making the investment an available-for-sale security. The following transactions took place in 2001, 2002, and 2003.

2001
Jan 17 Purchased 2,750 shares of Horner Company stock for $89,500.
May 10 Received a cash dividend of $1.30 per share on Horner Company stock.
Dec. 31 The market value of the Horner Company stock was $30 per share.

2002
May 22 Purchased 750 shares of Horner Company stock at $40 per share.
July 18 Received a cash dividend of $0.90 per share on the Horner Company stock.
Dec. 31 The market value of the Horner Company stock was $42 per share.

2003
June 7 Received a cash dividend of $1 per share on the Horner Company stock.
Oct. 5 Sold the Horner Company stock at $27 per share for cash.
Dec. 31 The market value of the Horner Company stock was $25 per share.

Prepare the journal entries required to record each of these events.

## EXERCISE 12-5 INVESTMENT IN EQUITY SECURITIES

During 2001, Litten Company purchased trading securities as a short-term investment. The costs of the securities and their market values on December 31, 2003, are listed below:

| Security | Cost | Market Value (December 31, 2003) |
|---|---|---|
| A | $ 65,000 | $ 81,000 |
| B | 100,000 | 54,000 |
| C | 220,000 | 226,000 |

Litten had no trading securities in the years before 2003. Before any adjustments related to these trading securities, Litten had net income of $300,000 in 2003.

1. What is net income (ignoring income taxes) after making any necessary trading security adjustments?
2. What would net income be if the market value of Security B were $95,000?

## EXERCISE 12-6 INVESTMENT IN DEBT AND EQUITY SECURITIES

In February 2003, Packard Corporation purchased the following securities. Prior to these purchases, Packard had no portfolio of investment securities.

| Security | Type | Classification | Cost |
|---|---|---|---|
| 1 | Debt | Trading | $11,500 |
| 2 | Equity | Trading | 9,000 |
| 3 | Equity | Available-for-sale | 7,250 |
| 4 | Debt | Available-for-sale | 12,300 |

During 2003, Packard received $2,400 in interest and $1,800 in dividends. On December 31, 2003, Packard's portfolio of securities had the following market values:

| Security | Fair Market Value |
|---|---|
| 1 | $12,000 |
| 2 | 8,750 |
| 3 | 7,500 |
| 4 | 12,500 |

Prepare the journal entries required to record each of these transactions.

## EXERCISE 12-7

### INVESTMENT IN DEBT AND EQUITY SECURITIES

CIB, Inc., purchased the following securities during 2003:

| Security | Type | Classification | Cost |
|---|---|---|---|
| 1 | Debt | Trading | $1,200 |
| 2 | Equity | Trading | 1,750 |
| 3 | Debt | Available-for-sale | 2,100 |
| 4 | Equity | Available-for-sale | 900 |
| 5 | Debt | Held-to-maturity | 5,500 |

During 2003, CIB received interest of $700 and dividends of $300 on its investments. On September 29, 2003, CIB sold one-half of Security 1 for $800. On December 31, 2003, the portfolio of securities had the following fair market values:

| Security | Fair Market Value |
|---|---|
| 1 | $ 850 |
| 2 | 1,800 |
| 3 | 2,000 |
| 4 | 950 |
| 5 | 6,000 |

CIB had no balance in its market adjustment accounts at the beginning of the year.

Prepare the journal entries required to record the purchase of the securities, the receipt of interest and dividends, the sale of securities, and the adjustments required at year-end.

## EXERCISE 12-8

### INVESTMENT IN SECURITIES—CHANGES IN VALUE

Sharp, Inc., had the following portfolio of investment securities on January 1, 2003:

| Security | Type | Classification | Historical Cost | Fair Market Value (1/1/03) |
|---|---|---|---|---|
| 1 | Debt | Trading | $1,000 | $ 800 |
| 2 | Equity | Trading | 1,250 | 1,100 |
| 3 | Debt | Trading | 1,700 | 1,650 |
| 4 | Debt | Available-for-sale | 2,200 | 2,150 |
| 5 | Debt | Held-to-maturity | 1,800 | 1,750 |

Appropriate adjustments have been made in prior years. No securities were bought or sold during 2003. On December 31, 2003, Sharp's portfolio of securities had the following fair market values:

| Security | Fair Market Value (12/31/03) |
|---|---|
| 1 | $ 650 |
| 2 | 1,200 |
| 3 | 1,700 |
| 4 | 2,250 |
| 5 | 1,850 |

Prepare the necessary adjusting entry(ies) on December 31, 2003.

## EXERCISE 12-9

### INVESTMENT IN SECURITIES—CHANGES IN VALUE

Atlantic, Inc., held the following portfolio of securities on December 31, 2002 (the end of its first year of operations):

| | Cost | Market Value (12/31/02) |
|---|---|---|
| Trading securities | $18,700 | $17,500 |
| Available-for-sale securities | 21,350 | 22,000 |
| Held-to-maturity securities | 15,000 | 15,700 |

No additional securities were bought or sold during 2003. On December 31, 2003, Atlantic's securities had a fair market value of:

| | |
|---|---|
| Trading securities | $18,250 |
| Available-for-sale securities | 22,500 |
| Held-to-maturity securities | 15,300 |

Prepare the entries required at the end of 2002 and 2003 to properly adjust Atlantic's portfolio of securities.

## EXERCISE 12-10

### ACCOUNTING FOR THE PURCHASE OF SECURITIES

The Fishing Store is a chain of sporting goods stores. The Fishing Store is interested in using some of its excess cash to invest in securities. It decides to buy the following securities:

| Security | Type | Price |
|---|---|---|
| Fea Company | Available-for-sale | $ 4,000 |
| Herdsman, Inc. | Trading | 7,500 |
| Lenny Company | Available-for-sale | 3,200 |
| White Company | Held-to-maturity | 10,000 |

Prepare the journal entry to record the purchase of these securities.

## EXERCISE 12-11

### ACCOUNTING FOR THE SALE OF SECURITIES

Jerrod Company owns the following securities, which it is interested in selling:

| Security | Type | Cost | Market Adjustments | Market Price |
|---|---|---|---|---|
| Monsen Company | Available-for-sale | $ 4,000 | $ 300 increase | $ 5,000 |
| Jensen Company | Trading | 7,500 | 1,000 decrease | 5,500 |
| Stic Company | Available-for-sale | 3,200 | 500 increase | 4,000 |
| Larouse Company | Held-to-maturity | 10,000 | None | 11,000 |

Prepare the journal entry to record the sale of these securities.

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## EXERCISE 12-12

### HELD-TO-MATURITY SECURITY PRICE DETERMINATION

1. How much should an investor pay for $100,000 of debenture bonds that pay interest every six months at an annual rate of 8%, assuming that the bonds mature in 10 years and that the effective interest rate at the date of purchase is also 8%?
2. How much should an investor pay for $100,000 of debenture bonds that pay $5,000 of interest every six months, have a maturity date in 10 years, and are sold to yield 8% interest, compounded semiannually?

## EXERCISE 12-13 HELD-TO-MATURITY SECURITY PRICE DETERMINATION

Flat Rock Corporation has decided to purchase bonds of Vicon Corporation as a long-term investment. The eight-year bonds have a stated rate of interest of 10%, with interest payments being made semiannually. How much should Flat Rock be willing to pay for $35,000 of the bonds if:

1. A rate of return of 12% is deemed necessary to justify the investment?
2. A rate of return of 8% is considered to be an adequate return?

## EXERCISE 12-14 INVESTMENTS IN HELD-TO-MATURITY SECURITIES

Control Group purchased thirty $1,000, 10%, 20-year bonds of Natchez Corporation on January 1, 2003, as a long-term investment. The bonds mature on January 1, 2023, and interest is payable every January 1 and July 1. Control Group's reporting year ends December 31, and the company uses the straight-line method of amortizing premiums and discounts.

Make all necessary journal entries relating to the bonds for 2003, assuming:

1. The purchase price is 104% of face value.
2. The purchase price is 94% of face value.

## EXERCISE 12-15 STRAIGHT-LINE AMORTIZATION OF PREMIUM

On their issuance date, Color Company purchased 20 $1,000, 8%, five-year bonds of Morton Company as a long-term investment for $21,706. Interest payments are made semiannually. Prepare a schedule showing the amortization of the bond premium over the five-year life of the bonds. Use the straight-line method of amortization.

## EXERCISE 12-16 EFFECTIVE-INTEREST AMORTIZATION OF PREMIUM

Assume the same facts as in Exercise 12-15. Prepare a schedule showing the amortization of the bond premium over the five-year life of the bonds. Use the effective-interest method of amortization. (HINT: The effective rate of interest earned on the bonds is 6% compounded semiannually.)

## EXERCISE 12-17 INVESTMENTS IN STOCK—EQUITY METHOD

On January 3, 2003, SW, Inc., purchased 8,000 shares of the outstanding common stock of IM Corporation. At the time of this transaction, IM has 20,000 shares of common stock outstanding. The cost of the purchase (including brokerage fees) was $47 per share. During the year, IM reported income of $18,000 and paid dividends of $10,000. On December 31, 2003, IM's stock was valued at $51 per share.

Provide the entries necessary to record the above transactions.

## EXERCISE 12-18 EQUITY METHOD

Foster Enterprises purchased 20% of the outstanding common stock of Novelties, Inc., on January 2, 2003, paying $150,000. During 2003, Novelties, Inc., reported net income of $20,000 and paid dividends to shareholders of $15,000. On December 31, 2003, Foster's investment in Novelties stock had a fair market value of $158,000. Assuming this is the only security owned by Foster, prepare all journal entries required by Foster in 2003 assuming:

1. The security is classified as a trading security.
2. The security is classified as an available-for-sale security.
3. The equity method is applied to the investment.

## EXERCISE 12-19 INVESTMENTS IN STOCK—EQUITY METHOD

During 2003, Genco Corporation purchased 10,000 shares of Wiener Company stock for $85 per share. Wiener had a total of 40,000 shares of stock outstanding.

1. Prepare journal entries for the following transactions:

| | | |
|---|---|---|
| Jan. | 1 | Purchased 10,000 shares of common stock at $85. |
| Dec. | 31 | Wiener Company declared and paid a $4.60-per-share dividend. |
| | 31 | Wiener Company reported net income for 2003 of $360,000. |

2. On December 31, 2003, the market price of Wiener's stock was $79 per share. Show how this investment would be reported on Genco's balance sheet at December 31, 2003, assuming that this is the only stock investment owned by Genco.

## problems

### PROBLEM 12-1 INVESTMENT IN SECURITIES—RECORDING AND ANALYSIS

The following data pertain to the securities of Linford Company during 2003, the company's first year of operations:

a. Purchased 400 shares of Corporation A stock at $40 per share plus a commission of $200. This security is classified as trading.
b. Purchased $6,000 of Corporation B bonds. These bonds are classified as trading.
c. Received a cash dividend of $0.50 per share on the Corporation A stock.
d. Sold 100 shares of Corporation A stock for $46 per share.
e. Received interest of $240 on the Corporation B bonds.
f. Purchased 50 shares of Corporation C stock for $3,500. Classified the stock as available-for-sale.
g. Received interest of $240 on the Corporation B bonds.
h. Sold 150 shares of Corporation A stock for $28 per share.
i. Received a cash dividend of $1.40 per share on the Corporation C stock.
j. Interest receivable at year-end on the Corporation B bonds amounts to $60.

*Required:* Prepare journal entries to record the preceding transactions. Post the entries to T-accounts, and determine the amount of each of the following for the year:
1. Dividend revenue.
2. Bond interest revenue.
3. Net gain or loss from selling securities.

### PROBLEM 12-2 BUYING AND SELLING TRADING SECURITIES

Fox Company incurred the following transactions relating to the common stock of NOP Company:

| | |
|---|---|
| July 10, 2001 | Purchased 10,000 shares at $45 per share. |
| Sep. 29, 2002 | Sold 2,000 shares at $51 per share. |
| Aug. 17, 2003 | Sold 2,500 shares at $33 per share. |

The end-of-year market prices for the shares were as follows:

| | |
|---|---|
| Dec. 31, 2001 | $47 per share |
| Dec. 31, 2002 | $39 per share |
| Dec. 31, 2003 | $31 per share |

Fox Company classifies the NOP stock as trading securities.

*Required:*
1. Determine the amount of (a) realized gain or loss and (b) unrealized gain or loss to be reported on the income statement each year relating to the NOP stock.
2. How would your answer to (1) change if the securities were classified as available-for-sale? Explain.

## PROBLEM 12-3 TRADING AND AVAILABLE-FOR-SALE SECURITIES

Lorien Technologies, Inc., purchased the following securities during 2002:

| Security | Classification | Cost | Market Value (12/31/02) |
|---|---|---|---|
| A | Trading | $ 5,000 | $ 4,000 |
| B | Trading | 7,000 | 10,000 |
| C | Available-for-sale | 10,000 | 8,000 |
| D | Available-for-sale | 6,000 | 3,500 |

The following transactions occurred during 2003:

a. On January 1, 2003, Lorien purchased Security E for $12,000. Security E is classified as available-for-sale.
b. On March 23, 2003, Security B was sold for $4,700.
c. On July 23, 2003, Security C was sold for $19,500.

The remaining securities had the following market values as of December 31, 2003:

| Security | Market Value |
|---|---|
| A | $ 4,500 |
| D | 5,000 |
| E | 13,000 |

*Required:*

1. Determine the amount of (a) realized gain or loss and (b) unrealized gain or loss to be reported relating to Lorien's trading securities for 2003.
2. Determine the amount of (a) realized gain or loss and (b) unrealized gain or loss to be reported relating to Lorien's available-for-sale securities for 2003. Which amounts will appear on the income statement?

## PROBLEM 12-4 INVESTMENTS IN TRADING SECURITIES

In December 2003, the treasurer of Marble Company concluded that the company had excess cash on hand and decided to invest in Sandy Corporation stock. The company intends to hold the stock for a period of 6 to 12 months and classifies the security as trading. The following transactions took place:

| | |
|---|---|
| Jan. 1 | Purchased 5,500 shares of Sandy Corporation stock for $82,500. |
| Apr. 15 | Received a cash dividend of $0.65 per share on the Sandy Corporation stock. |
| May 22 | Sold 1,500 shares of the Sandy Corporation stock at $20 per share for cash. |
| July 15 | Received a cash dividend of $0.45 per share on the Sandy Corporation stock. |
| Aug. 31 | Sold the balance of the Sandy Corporation stock at $8 per share for cash. |

*Required:* Prepare the appropriate journal entries to record each of these transactions.

## PROBLEM 12-5 INVESTMENTS IN DEBT AND EQUITY SECURITIES

Menlo Company often invests in the debt and equity securities of other companies as short-term investments. During 2003, the following events occurred:

July 1 Menlo purchased the securities listed here:

| Security | Type | Classification | Cost |
|---|---|---|---|
| 1 | Debt | Trading | $28,800 |
| 2 | Equity | Trading | 27,600 |
| 3 | Equity | Trading | 46,800 |
| 4 | Equity | Available-for-sale | 16,800 |

Sep. 30 Menlo received a cash dividend of $1,500 on Security 2.
Dec. 1 Menlo sold Security 4 for $14,800.
31 Menlo received interest of $2,600 on Security 1.
31 The market prices were quoted as follows: Security 1, $25,600; Security 2, $28,800; Security 3, $45,000.

*Required:*

1. Prepare journal entries to record the events.
2. Illustrate how these investments would be reported on the balance sheet at December 31.
3. What items and amounts would be reported on the income statement for the year?

## PROBLEM 12-6 UNIFYING CONCEPTS: SHORT-TERM INVESTMENTS IN STOCKS AND BONDS

FRC Manufacturing Company produces and sells one main product. There is significant seasonality in demand, and the unit price is quite high. As a result, during the heavy selling season, the company generates cash that is idle for a few months. The company uses this cash to acquire investments. The following transactions relate to FRC's investments during 2003:

Mar. 15 Purchased 800 shares of Lewis Corporation stock at $25 per share, plus brokerage fees of $624. This stock is classified as trading.
Apr. 1 Purchased $42,000 of 12% bonds of Martin Company. This investment is classified as available-for-sale.
June 3 Received a cash dividend of $1.80 per share on the Lewis Corporation stock.
Oct. 1 Received a semiannual interest payment of $2,520 on the Martin Company bonds.
10 Sold 600 shares of the Lewis Corporation stock at $29 per share less a $325 brokerage fee.
Dec. 31 Recorded $1,260 of interest earned on the Martin Company bonds for the period October 1, 2003, through December 31, 2003.
31 The market price of the Lewis Corporation stock was $22 per share; the market price of the Martin Company bonds was $40,320.

*Required:*

Prepare journal entries to record these transactions.

## PROBLEM 12-7 RECORDING INVESTMENT TRANSACTIONS

The following data pertain to the investments of Sumner Company during 2003, the company's first year of operations:

a. Purchased 200 shares of Corporation A stock at $40 per share, plus brokerage fees of $100. Classified as trading.
b. Purchased $10,000 of Corporation B bonds at face value. Classified as trading.
c. Received a cash dividend of $0.50 per share on the Corporation A stock.
d. Received interest of $600 on the Corporation B bonds.
e. Purchased 50 shares of Corporation C stock for $3,500. Classified as available-for-sale.
f. Received interest of $600 on the Corporation B bonds.
g. Sold 80 shares of Corporation A stock for $32 per share due to a significant decline in the market.
h. Received a cash dividend of $1.40 per share on the Corporation C stock.
i. Interest receivable at year-end on the Corporation B bonds amounts to $200.
j. Market value of securities at year-end: Corporation A stock, $42 per share; Corporation B bonds, $10,200; Corporation C stock, $3,450.

*Required:*

Enter these transactions in T-accounts, and determine each of the following for the year:

1. Dividend revenue.
2. Bond interest revenue.
3. Net gain or loss from selling securities.
4. Unrealized gain or loss from holding securities.

## PROBLEM 12-8 INVESTMENTS IN AVAILABLE-FOR-SALE SECURITIES

Durham Company often purchases common stocks of other companies as long-term investments. At the end of 2002, Durham held the common stocks listed. (Assume that Durham Company exercises no significant influence over these companies; that is, they are classified as available-for-sale securities.)

| Corporation | Number of Shares | Cost per Share |
|---|---|---|
| A | 2,000 | $ 70 |
| B | 3,000 | 50 |
| C | 1,500 | 148 |
| D | 1,000 | 82 |

Additional information for 2002:

Sep. 30 Durham received a cash dividend of $2.50 per share on Corporation A stock.
Dec. 31 The market prices were quoted as follows:
Corporation A stock, $64; Corporation B stock, $48;
Corporation C stock, $150; Corporation D stock, $78.

*Required:*

1. Illustrate how these investments would be reported on the balance sheet at December 31, 2002, and prepare the adjusting entry at that date.
2. What items and amounts would be reported on the income statement for 2002?
3. Prepare the journal entry for the sale of Corporation D stock for $74 per share in 2003.
4. **Interpretive Question:** Why are losses from the write-down of available-for-sale securities not included in the current year's income, whereas similar losses for trading securities are included?

## PROBLEM 12-9 UNIFYING CONCEPTS: INVESTMENTS IN DEBT AND EQUITY SECURITIES

On January 1, Draxton Company had surplus cash and decided to make some long-term investments. The following transactions occurred during the year:

Jan. 1 Purchased twenty $1,000, 12% bonds of Sifco Corporation at face value. Semiannual interest payment dates are January 1 and July 1 each year. The bonds are classified as available-for-sale.
Feb. 15 Purchased 4,000 shares of Porto Corporation stock at $35 per share, plus brokerage fees of $1,500. The stock is classified as available-for-sale.
July 1 Received a semiannual interest payment on the Sifco Corporation bonds.
Sep. 30 Received an annual cash dividend of $1.50 per share on Porto Corporation stock.
Oct. 15 Sold 1,000 shares of the Porto Corporation stock at $42 per share.
Dec. 31 Adjusted the accounts to accrue interest on the Sifco Corporation bonds.

*Required:*

1. Prepare journal entries for these transactions.
2. The market quote for Sifco Corporation's bonds at closing on December 31 was 104. The Porto Corporation stock closed at $40 per share. Prepare a partial balance sheet showing all the necessary data for these securities. Assume that Draxton exercises no significant influence over its investees.

## PROBLEM 12-10 INVESTMENTS IN EQUITY SECURITIES

On March 15, 2003, Boston Company acquired 5,000 shares of Richfield Corporation common stock at $45 per share as a long-term investment. Richfield has 50,000 shares of outstanding voting common stock. Boston does not own any other stocks. The following additional events occurred during the fiscal year ended December 31, 2003:

Dec. 1 Boston received a cash dividend of $2.50 per share from Richfield Corporation.
31 Richfield Corporation announced earnings for the year of $150,000.
31 Richfield common stock had a closing market price of $42 per share.

*Required:*

1. What accounting method should be used to account for this investment? Why?
2. Prepare journal entries for the above transactions.
3. Prepare a partial income statement and balance sheet to show how the investments accounts would be shown on the financial statements.

## PROBLEM 12-11 INVESTMENT PORTFOLIO

General Corporation has the following investments in equity securities at December 31, 2002 (there are no existing balances in the market adjustment account):

| Company | Classification | Shares | Percentage of Shares Owned | Cost | Market Price at 12/31/02 |
|---|---|---|---|---|---|
| Clarke Corporation | Trading | 1,000 | 2% | $75 | $78 |
| Marlin Company | Available-for-sale | 4,000 | 15 | 34 | 32 |
| Air Products, Inc. | Available-for-sale | 3,000 | 10 | 46 | 43 |

*Required:*

1. Prepare any adjusting entries required at December 31, 2002.
2. Illustrate how these investments would be presented on General Corporation's balance sheet at December 31, 2002. The available-for-sale securities are expected to be held for two to five years.
3. Prepare the journal entry on April 10, 2003, when General Corporation sold the Clarke Corporation investment for $72 per share.
4. Assume that General Corporation still owns its investment in Marlin Company and Air Products at December 31, 2003; the market prices on that date are $37 for Marlin and $44 for Air Products. Prepare all adjusting journal entries needed at December 31, 2003.

expanded material

## PROBLEM 12-12 INVESTMENTS IN HELD-TO-MATURITY SECURITIES

Cyril Corporation purchased $25,000 of Baker Construction Company's 12% bonds at 102½ plus accrued interest on February 1, 2002. The bonds mature on April 1, 2009, and interest is payable on April 1 and October 1. Cyril Corporation uses the straight-line method of amortizing bond premiums and discounts.

*Required:*

1. Record all journal entries to account for this investment during the years 2002 and 2003, assuming that Cyril closes its books annually on December 31.
2. **Interpretive Question:** At the time these bonds were purchased (February 1, 2002), was the market rate of interest above or below 12%? Explain.

## PROBLEM 12-13 INVESTMENTS IN HELD-TO-MATURITY SECURITIES

On January 1, 2003, Eurowest Company purchased a $25,000, 12% bond at 104 as a long-term investment. The bond pays interest annually on each December 31 and matures on December 31, 2005.

*Required:*

Assuming straight-line amortization, answer the following questions:

1. What will be the net amount of cash received (total inflows minus total outflows) from this investment over its life?
2. How much cash will be collected each year?
3. How much premium will be amortized each year?
4. By how much will Investment in Held-to-Maturity Securities decrease each year?
5. How much revenue will be reported on the income statement each year relating to this security?

## PROBLEM 12-14

### DETERMINING THE PURCHASE PRICE OF HELD-TO-MATURITY SECURITIES AND EFFECTIVE-INTEREST AMORTIZATION

Corbett Corporation decided to purchase twenty $1,000, 10%, six-year bonds of Texas Manufacturing Company as a long-term investment on February 1, 2002. The bonds mature on February 1, 2008, and interest payments are made semiannually on February 1 and August 1.

*Required:*

1. How much should Corbett Corporation be willing to pay for the bonds if the current interest rate on similar bonds is 8%?
2. Prepare a schedule showing the amortization of the bond premium or discount over the remaining life of the bonds, assuming that Corbett Corporation uses the effective-interest method of amortization.
3. How much bond interest revenue would be recorded each year if the straight-line method of amortization were used? Show how these amounts differ from the annual interest recognized using the effective-interest method. (Assume a fiscal year ending July 31.)
4. **Interpretive Question:** Which of the two amortization methods is preferable? Why?

## PROBLEM 12-15

### INVESTMENTS IN HELD-TO-MATURITY SECURITIES

Strong Equipment Company made the following purchases of debt securities during 2003. All are classified as held-to-maturity, and all pay interest semiannually.

| Purchase Date | Corp. | Face Amount | Cost | Interest Rate, % | Maturity Date | Last Interest Payment Date |
|---|---|---|---|---|---|---|
| 10/15/03 | A | $ 5,000 | 102 | 9 | 1/1/08 | 7/1/03 |
| 11/30/03 | B | 10,000 | 96 | 12 | 4/1/06 | 10/1/03 |
| 12/15/03 | C | 15,000 | 98 | 14 | 6/1/07 | 12/1/03 |
| 12/31/03 | D | 12,000 | 105 | 10¼ | 5/1/04 | 11/1/03 |

*Required:*

1. Prepare journal entries for the purchases.
2. Show all adjusting entries relating to the bonds on December 31, 2003, assuming that Strong Equipment Company closes its book on that date and uses the straight-line amortization method.

## PROBLEM 12-16

### LONG-TERM INVESTMENTS IN EQUITY SECURITIES

Century Corporation acquired 8,400 common shares of Fidelity Company on January 10, 2003, for $12 per share and acquired 15,000 common shares of Essem Corporation on January 25, 2003, for $22 per share. Fidelity has 60,000 shares of common stock outstanding, and Essem has 50,000 shares outstanding. At December 31, 2003, the following information was obtained about the operations of Fidelity and Essem:

| | Fidelity | Essem |
|---|---|---|
| Net income | $36,000.00 | $100,000.00 |
| Dividends paid per share | 0.40 | 1.00 |
| Market value per share at December 31, 2003 | 10.00 | 20.00 |

Assume that Century Corporation exerted significant influence over the policies of Essem Corporation, but influenced the policies of Fidelity Corporation only to a very limited extent. Century classified its investment in Fidelity as an available-for-sale security.

*Required:*

1. How should Century account for its investments in Essem Corporation?
2. Prepare the journal entries for each investment for the year 2003 using the method or methods you selected in (1).

## PROBLEM 12-17 INVESTMENTS IN STOCKS—EQUITY METHOD

On April 20, 2003, Samson Company acquired 20,000 shares of Salem Industries common stock at $38 per share as a long-term investment. Salem has 50,000 shares of outstanding voting common stock. The following additional information is presented for the calendar year ended December 31, 2003:

Nov. 20 Samson received a cash dividend of $2 per share from Salem Industries.
Dec. 31 Salem announced earnings for the year of $135,000.
31 Salem Industries common stock had a closing market price of $35 per share.

*Required:*

1. **Interpretive Question:** What accounting method should be used by Samson Company to account for this investment? Why?
2. Prepare journal entries for the transactions and events described.

## PROBLEM 12-18 LONG-TERM INVESTMENTS IN STOCK—AVAILABLE-FOR-SALE AND EQUITY METHOD

The following activities relate to the Hilton Company during the years 2002 and 2003:

2002

Feb. 15 Hilton purchased 5,000 shares of Brock Equipment stock for $35 per share.
Dec. 1 Hilton received a $1.25-per-share cash dividend from Brock Equipment.
31 Brock Equipment common stock had a closing market price of $32 per share. Brock's 2002 net income was $60,000.

2003

July 1 Hilton sold all 5,000 shares of Brock Equipment stock for $37 per share.

Additional information: Brock Equipment had 25,000 shares of common stock outstanding on January 1, 2002.

*Required:*

1. Prepare journal entries to record the transactions assuming:
   a. The securities are classified as available-for-sale.
   b. The equity method is used.
2. Show the amounts that would be reported on the financial statements of Hilton Company at December 31, 2002, under each assumption.
3. **Interpretive Question:** What is the minimum number of shares of stock that Brock could have outstanding in order for Hilton to use the equity method?

## PROBLEM 12-19 LONG-TERM INVESTMENTS IN EQUITY SECURITIES

During January 2003, Danbury, Inc., acquired 40,000 shares of Corporation A common stock for $24 per share. In addition, it purchased 5,000 shares of Corporation B preferred (nonvoting) stock for $112 per share. Corporation A has 160,000 shares of common stock outstanding, and Corporation B has 12,000 shares of nonvoting stock outstanding. Danbury anticipates holding both securities for at least five years.

The following data were obtained from operations during 2003:

| | 2003 |
|---|---|
| *Net income:* | |
| Corporation A | $190,000 |
| Corporation B | 80,000 |
| *Dividends paid (per share):* | |
| Corporation A | $0.60 |
| Corporation B | 2.50 |
| *Market value per share at December 31:* | |
| Corporation A | $ 25 |
| Corporation B | 109 |

*Required:*

1. **Interpretive Question:** What method should Danbury, Inc., use in accounting for the investment in Corporation A stock? Why? What accounting method should be used in accounting for Corporation B nonvoting stock? Why?
2. Prepare the journal entries necessary to record the transactions for 2003.

## PROBLEM 12-20

### UNIFYING CONCEPTS: LONG-TERM INVESTMENTS IN STOCKS AND BONDS

On January 2, 2003, Drexello, Inc., purchased $75,000 of 10%, five-year bonds of Greasy Trucking as a held-to-maturity security at a price of $77,610 plus accrued interest. The bonds mature on November 1, 2007, and interest is payable semiannually on May 1 and November 1. Drexello uses the straight-line method of amortizing bond premiums and discounts.

In addition to the bonds, Drexello purchased 30% of the 50,000 shares of outstanding common stock of Mellon Company at $42 per share, plus brokerage fees of $450, on January 10, 2003. On December 31, 2003, Mellon announced that its net income for the year was $150,000 and paid an annual dividend of $2 per share as advised by the board of directors of Drexello. The closing market price of Mellon common stock on December 31 was $38 per share.

*Required:*

1. Record all the 2003 transactions relating to these two investments in general journal form.
2. Show how the long-term investments and the related revenues would be reported on the financial statements of Drexello at December 31, 2003.

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***• Analyzing 12-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** is included in Appendix A. Locate that annual report and consider the following questions:

1. Find Microsoft's note on accounting policies. Using the information in that note (under the heading "Financial Instruments"), determine what fraction of Microsoft's investment securities are classified as "available-for-sale."
2. In its note on "Cash and short-term investments," Microsoft lists the general types of investments that make up its $17.236 billion portfolio. Certificates of deposit are listed both as "cash and cash equivalents" and as

"short-term investments." What is the difference between these two categories? HINT: Go back to the note you looked at to answer (1).

3. Look at Microsoft's stockholders' equity statement. Where in the equity section does Microsoft report the unrealized gains and losses from available-for-sale securities?

***• Analyzing 12-2 (Berkshire Hathaway)***

The following note comes from the 1999 annual report of **BERKSHIRE HATHAWAY**:

**(5) Investments in equity securities**

Aggregate data with respect to the consolidated investment in equity securities are shown below (in millions):

*December 31, 1999*

| | Cost | Unrealized Gains | Fair Value |
|---|---|---|---|
| Common stock of: | | | |
| American Express Company | $ 1,470 | $ 6,932 | $ 8,402 |
| The Coca-Cola Company | 1,299 | 10,351 | 11,650 |
| The Gillette Company | 600 | 3,354 | 3,954 |
| Other equity securities | 6,305 | 7,461 | 13,766 |
| Other investments | 1,651 | 85 | 1,736 |
| | $11,325 | $28,183 | $39,508 |

*December 31, 1998*

| | Cost | Unrealized Gains | Fair Value |
|---|---|---|---|
| Common stock of: | | | |
| American Express Company | $ 1,470 | $ 3,710 | $ 5,180 |
| The Coca-Cola Company | 1,299 | 12,101 | 13,400 |
| The Gillette Company | 600 | 3,990 | 4,590 |
| Other equity securities | 5,889 | 9,062 | 14,951 |
| Other investments | 1,639 | 1 | 1,640 |
| | $10,897 | $28,864 | $39,761 |

Berkshire Hathaway also discloses that it classifies each of these investments as an available-for-sale security.

1. All securities included in the tables in Berkshire Hathaway's Note 5 are classified as available-for-sale. Make all journal entries that were required in 1999 to account for Berkshire Hathaway's investments in:
   a. **AMERICAN EXPRESS COMPANY**.
   b. Other equity securities.
2. Did the performance of Berkshire Hathaway's portfolio of equity securities have any bright spots in 1999?
3. How has Berkshire Hathaway's portfolio of equity securities performed over time?

## INTERNATIONAL CASE

***• Sony***

**SONY CORPORATION** was organized in 1946 under the name **TOKYO TSUSHIN KOGYO**. The name "Sony" is a combination of the Latin word *sonus* (sound)

and the English word *sonny*; it was given to a small transistor radio sold by the company in the United States, starting in 1954. The radio was so popular that the entire company changed its name to Sony in 1958.

In its 2000 annual report, Sony included the note to its financial statements shown below.

**(10) Marketable securities and securities investments**

| | Yen in millions | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | March 31, 1999 | | | | March 31, 2000 | | | |
| | Cost | Gross unrealized gains | Gross unrealized losses | Fair value | Cost | Gross unrealized gains | Gross unrealized losses | Fair value |
| Available-for-sale: | | | | | | | | |
| Debt securities | ¥746,005 | ¥36,632 | ¥12,187 | ¥770,450 | ¥739,563 | ¥ 40,646 | ¥7,268 | ¥772,941 |
| Equity securities | 57,712 | 13,774 | 3,156 | 68,330 | 55,321 | 66,905 | 2,594 | 119,632 |
| Total | ¥803,717 | ¥50,406 | ¥15,343 | ¥838,780 | ¥794,884 | ¥107,551 | ¥9,862 | ¥892,573 |

| | Dollars in millions | | | |
|---|---|---|---|---|
| | March 31, 2000 | | | |
| | Cost | Gross unrealized gains | Gross unrealized losses | Fair value |
| Available-for-sale: | | | | |
| Debt securities | $6,977 | $ 384 | $69 | $7,292 |
| Equity securities | 522 | 631 | 24 | 1,129 |
| Total | $7,499 | $1,015 | $93 | $8,421 |

1. In the notes to its English-language financial statements, Sony states that those statements "conform with accounting principles generally accepted in the United States." However, Sony's official accounting records are maintained using Japanese accounting principles. Why would Sony go to the trouble of preparing a separate set of English-language financial statements using U.S. accounting principles?
2. Assuming that approximately the same available-for-sale securities were on hand in both 1999 and 2000, how well did Sony's investments perform in 2000?
3. What journal entries did Sony make during the year to record the revaluation of available-for-sale securities? Use only the total amounts (that is, don't use the separate amounts for debt and equity securities), and ignore the fact that securities were bought and sold during the year.

## ETHICS CASE

***• Is It OK to Strategically Classify Securities?***

You have recently been hired as a staff assistant in the office of the chairman of the board of directors of Clefton, Inc. Because you have some background in accounting, the chairman has asked you to review the preliminary financial statements that have been prepared by the company's accounting staff. After

the financial statements are approved by the chairman of the board, they will be audited by external auditors. This is the first year that Clefton has had its financial statements audited by external auditors.

In examining the financial statement note on investment securities, you notice that all of the securities that had unrealized gains for the year have been classified as trading, whereas all of the securities that had unrealized losses have been classified as available-for-sale. You realize that this has the impact of placing all the gains on the income statement and hiding all the losses in the equity section of the balance sheet. You call the chief accountant who confirms that the securities are not classified until the end of the year and that the classification depends on whether a particular security has experienced a gain or a loss during the year. The chief accountant states that this policy was adopted, with the approval of the chairman of the board, in order to maximize the reported net income of the company. The chief accountant tells you that investment security classification is based on how management intends to use those securities; therefore, management is free to classify the securities in any way it wishes.

You are uncomfortable with this investment security classification strategy. You are also dismayed that the chief accountant and the chairman of the board seem to have agreed on this scheme to maximize reported income. You are also worried about what the external auditors will do when they find out about this classification scheme. You have been asked to report to the chairman of the board this afternoon to give your summary of the status of the preliminary financial statements. What should you do?

## WRITING ASSIGNMENT

***• Why Doesn't the Gain Go on the Income Statement?***

You are the controller for Chong Lai Company. You just received a very strongly worded e-mail message from the president of the company. The president has learned that a $627,000 gain on a stock investment made by the company last year will not be reported in the income statement because you have classified the security as available-for-sale. With the gain, the company would report a record profit for the year. Without the gain, profits are actually down slightly from the year before. The president wants an explanation—*now*.

It has been your policy for the past several years to routinely classify all investments as available-for-sale. Your company is not in the business of actively buying and selling stocks and bonds. Instead, all investments are made to strengthen relationships with either suppliers or major customers. As such, your practice is to buy securities and hold them for several years.

Write a one-page memo to the president explaining the rationale behind your policy of security classification.

## THE DEBATE

***• Market Values Do Not Belong in the Financial Statements!***

Accounting traditionalists opposed the move to report investment securities in the balance sheet at their current market value. These traditionalists complain that inclusion of market values reduces the reliability of the financial statements and introduces an unnecessary amount of variability in the reported numbers. On the other hand, supporters of reporting market values claim that market values are extremely relevant and, for investment securities traded on active markets, are reliable as well.

Divide your group into two teams.

- One team represents "Market Value." Prepare a two-minute oral presentation arguing that the market value of investment securities should be reported in the balance sheet. To do otherwise is to make the statements an out-of-date curiosity rather than a useful tool.
- The other team represents "Historical Cost." Prepare a two-minute oral presentation arguing for a return to strict historical cost in the balance sheet.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignments given in earlier chapters. If you completed those spreadsheets, you have a head start on this one.

This assignment is based on the spreadsheet prepared in part (1) of the spreadsheet assignment for Chapter 9. Review that assignment for a summary of the assumptions made in preparing a forecasted balance sheet, income statement, and statement of cash flows for 2003 for Handyman Company. Using those financial statements, complete the following exercise.

Handyman has decided that, in 2003, it will create an available-for-sale investment portfolio. Handyman plans to invest $20 million in a variety of stocks and bonds. (Recall that the numbers in the Handyman spreadsheet are in millions.) As of the end of 2002, Handyman has no investment portfolio. Adapt your spreadsheet to include this expected $20 million investment portfolio as a current asset in 2003. Ignore the possibility of any interest, dividends, gains, or losses on this portfolio. Answer the following questions:

1. With the assumptions built into your spreadsheet, where will Handyman get the $20 million in funding necessary to acquire these investment securities?
2. Where in the statement of cash flows did you put the cash outflow associated with the acquisition of these investment securities? Explain your placement.

## INTERNET SEARCH

***• Berkshire Hathaway***

The history of **BERKSHIRE HATHAWAY** was outlined at the beginning of this chapter. Access Berkshire Hathaway's Web site at **http://www.berkshirehathaway.com**. Sometimes Web addresses change, so if this address doesn't work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link.

Once you've gained access to the site, answer the following questions:

1. Berkshire Hathaway can be described as primarily a holding company, which is a company that has no real operations of its own but instead holds ownership shares of other companies. Berkshire Hathaway's Web site offers links to a number of the subsidiaries that it holds. What are some of these subsidiaries?
2. Warren Buffett writes the best "Chairman's Letters to Shareholders" in corporate America. A historical collection of these letters is included in Berkshire Hathaway's Web site. Look at the 1994 letter and find out whom Warren Buffett quoted on the dangers of hard work.
3. Berkshire Hathaway has two classes of common stock. What does the Web site say about the difference between them?
4. Berkshire Hathaway is constantly making new investments. Search the Web site for recent news releases and identify the most recent investments.

# comprehensive problem 9–12

Hannah Company started business on January 1, 2002. The following transactions and events occurred in 2002 and 2003. For simplicity, information for sales, inventory purchases, collections on account, and payments on account is given in summary form at the end of each year.

**2002**

Jan. 1 Issued 100,000 shares of $1-par common stock to investors at $20 per share.

1 Purchased a building for $550,000. The building has a 25-year expected useful life and a $50,000 expected salvage value. Hannah uses the straight-line method of depreciation.

1 Leased equipment under a five-year lease. The five lease payments of $30,000 each are to be made on December 31 of each year. The cash price of the equipment is $113,724. This lease is accounted for as a capital lease with an implicit interest rate of 10%. The equipment has a five-year useful life and zero expected salvage value; Hannah uses straight-line depreciation with all of its equipment.

Feb. 1 Borrowed $1.5 million from Burtone Bank. The loan bears an 11% annual interest rate. Interest is to be paid each year on February 1. The principal on the loan will be repaid in four years.

Mar. 1 Purchased 40,000 shares of Larry Company for $35 per share. Hannah classifies this as an investment in trading securities. These securities are reported as a current asset.

July 15 Purchased 50,000 shares of Frances Ann Company for $21 per share. Hannah classifies this as an investment in available-for-sale securities. These securities are reported as a long-term asset.

Nov. 17 Declared a cash dividend of $0.25 per share, payable on January 15, 2003.

Dec. 31 Made the lease payment.

31 The Larry Company shares had a market value of $30 per share. The Frances Ann Company shares had a market value of $27 per share.

*Summary*

a. Sales for the year (all on credit) totaled $800,000. The cost of inventory sold was $350,000.
b. Cash collections on credit sales for the year were $370,000.
c. Inventory costing $420,000 was purchased on account. (Hannah Company uses the perpetual inventory method.)
d. Payments on account totaled $400,000.

**2003**

Jan. 1 Issued $500,000 in bonds at par value. The bonds have a stated interest rate of 8%, payable semiannually on July 1 and January 1.

1 The estimated useful life and salvage value for the building were changed. It is now estimated that the building has a remaining life (as of January 1, 2003) of 20 years. Also, it is now estimated that the building will have no salvage value. These changes in estimate are to take effect for the year 2003 and subsequent years.

15 Paid the cash dividend declared in November 2002.

Feb. 1 Hannah Company repurchased 10,000 shares of its own common stock to be held as treasury stock. The price paid was $37 per share.

1 Paid the interest on the loan from Burtone Bank.

Apr. 10 Sold all 40,000 shares of the Larry Company stock. The shares were sold for $28 per share.

July 1 Paid the interest on the bonds.

Oct. 1 Retired the bonds that were issued on January 1. Hannah had to pay $470,000 to retire the bonds. This amount included interest that had accrued since July 1.

Nov 20 Declared a cash dividend of $0.40 per share. The dividend applies only to outstanding shares, not to treasury shares.

Dec. 31 Made the lease payment.
31 After recording depreciation expense for the year, the building was evaluated for possible impairment. The building is expected to generate cash flows of $20,000 per year for its 19-year remaining life. The building has a current market value of $325,000.
31 The Frances Ann Company shares had a market value of $18 per share.

*Summary*

a. Sales for the year (all on credit) totaled $1.7 million. The cost of inventory sold was $800,000.
b. Cash collections on credit sales for the year were $1.43 million.
c. Inventory costing $900,000 was purchased on account.
d. Payments on account totaled $880,000.

*Required:*

1. Prepare all journal entries to record the information for 2002. Also prepare any necessary adjusting entries.
2. Prepare a trial balance as of December 31, 2002. There is no need to show your ledger T-accounts; however, preparing and posting to T-accounts may aid in the preparation of the trial balance.
3. Prepare an income statement for the year ended December 31, 2002, and a balance sheet as of December 31, 2002.
4. Prepare all journal entries to record the information for 2003. Also prepare any necessary adjusting entries.
5. Prepare a trial balance as of December 31, 2003. (As you compute the amounts to include in the trial balance, don't forget the beginning balances left over from 2002.)
6. Prepare an income statement for the year ended December 31, 2003, and a balance sheet as of December 31, 2003.

# The Statement of Cash Flows

chapter

13

## learning objectives

After studying this chapter, you should be able to:

1. Understand the purpose of a statement of cash flows.
2. Recognize the different types of information reported in the statement of cash flows.
3. Prepare a simple statement of cash flows.
4. Analyze financial statements to prepare a statement of cash flows.
5. Use information from the statement of cash flows to make decisions.

**HOME DEPOT** is the leading retailer in the "do-it-yourself" home handyman market. In January 2000, Home Depot had 913 stores in the United States, five Canadian provinces, and Chile. With each store averaging 108,000 square feet (and an additional 24,000 square feet in the outside garden center), a lot of shelf space is filled with paint, lumber, hardware, and plumbing fixtures. If plumbing fixtures don't seem very exciting to you, consider this: Home Depot is the 22nd largest company in the United States (in terms of market value), with a 2000 market value of $122.9 billion.[1] And if lumber and hardware seem obsolete in this high-tech world, consider that, for the past 10 years, Home Depot's earnings per share (EPS) have grown an average of 30.4% per year, close to the 32.2% annual growth in EPS experienced by high-flying **INTEL** during the same period. In fiscal 1999, Home Depot's sales reached $38.4 billion.[2]

But Home Depot's prospects weren't always so rosy. Back in 1985, when sales were only $700 million, Home Depot experienced cash flow problems, in large part due to rapid increases in the level of inventory. Part of this inventory increase was the natural result of Home Depot's expansion. But Home Depot stores were also starting to fill up with excess inventory because of lax inventory management. In 1983, the average Home Depot store contained enough inventory to support average sales for 75 days. By 1985, the number of days' sales in inventory had increased to 83 days. Combined with Home Depot's rapid growth, this inventory inefficiency caused total inventory to increase by $69 million in 1985, and this increase in inventory was instrumental in Home Depot's negative cash from operations of $43 million. Concerns about this declining profitability and negative cash flow caused Home Depot's stock value to take a dive in 1985, and the beginning of 1986 found Home Depot wondering where it would find the investors and creditors to finance its aggressive expansion plans. Exhibit 13-1 summarizes the differences between Home Depot's reported net income and the company's cash flow from operations for the fiscal years 1984 through 1986 as well as the company's recent performance.

Home Depot's current success is the result of an incredible operating cash flow turnaround that the company pulled off in fiscal 1987. Operating income almost tripled compared to fiscal 1986, and net income increased from $8.2 million to $23.9 million. A computerized inventory management program was instituted, and the number of days' sales in inventory dropped to 80 days. Improved profitability and more efficient management of inventory combined to transform the negative $43 million operating cash flow in fiscal 1986 into positive cash from operations of $66 million in fiscal 1987.

## setting the stage

**exhibit 13-1** Home Depot's Net Income and Cash Flows from Operations

| | Fiscal Year Ended | | |
|---|---|---|---|
| **(in thousands)** | **February 2, 1986** | **February 3, 1985** | **January 29, 1984** |
| Net earnings | $ 8,219 | $14,122 | $ 10,261 |
| **Net cash provided by operations** | **(43,120)** | **(3,056)** | **(10,574)** |

| | Fiscal Year Ended | | |
|---|---|---|---|
| **(in thousands)** | **January 30, 2000** | **January 31, 1999** | **February 1, 1998** |
| Net earnings | $2,320,000 | $1,614,000 | $1,160,000 |
| Net cash provided by operations | 2,446,000 | 1,917,000 | 1,029,000 |

1 See the Fortune 500 listing at **http://www.fortune.com**.
2 January 30, 2000, 10-K filing of The Home Depot, Inc.

*In this chapter, we will study the statement of cash flows. You will learn that this statement provides one of the earliest warning signs of cash concerns of the type experienced by Home Depot. The statement of cash flows alerts financial statement readers to increases and decreases in cash as well as to the reasons and trends for the changes.*

*In today's business environment, it is not enough simply to monitor earnings and earnings per share measurements. An entity's financial position and especially its inflows and outflows of cash are also critical to its financial success.*

*The three primary financial statements were introduced and illustrated in Chapter 2. In subsequent chapters, we examined in detail the components of the balance sheet and income statement. For our discussion of the statement of cash flows, we will first describe the purpose and general format of a statement of cash flows. We will then show how easy it is to prepare a statement of cash flows if detailed cash flow information is available. A statement of cash flows can also be prepared based on an analysis of balance sheet and income statement accounts. We will also distinguish between the direct and indirect methods of reporting operating cash flows and discuss the usefulness of the statement of cash flows. Finally, we will explain how the statement of cash flows can be used to make investment and lending decisions.*

**1**

Understand the purpose of a statement of cash flows.

**statement of cash flows**
The financial statement that shows an entity's cash inflows (receipts) and outflows (payments) during a period of time.

## WHAT'S THE PURPOSE OF A STATEMENT OF CASH FLOWS?

The **statement of cash flows**, as its name implies, summarizes a company's cash flows for a period of time. It provides answers to such questions as, "Where did our money come from?" and "Where did our money go?" The statement of cash flows explains how a company's cash was generated during the period and how that cash was used.

You might think that the statement of cash flows is a replacement for the income statement, but the two statements have two different objectives. The income statement, as you know, measures the results of operations for a period of time. Net income is the accountant's best estimate at reflecting a company's economic performance for a period. The income statement provides details as to how the retained earnings account changes during a period and ties together, in part, the owners' equity sections of comparative balance sheets.

The statement of cash flows, on the other hand, provides details as to how the cash account changed during a period. The statement of cash flows reports the period's transactions and events in terms of their impact on cash. In Chapter 4, we compared the cash-basis and accrual-basis methods of measuring income and explained why accrual-basis income is considered a better measure of periodic income. The statement of cash flows provides important information from a cash-basis perspective that complements the income statement and balance sheet, thus providing a more complete picture of a company's operations and financial position. It is important to note that the statement of cash flows does not include any transactions or accounts that are not already reflected in the balance sheet or the income statement. Rather, the statement of cash flows simply provides information relating to the cash flow effects of those transactions.

Users of financial statements, particularly investors and creditors, need information about a company's cash flows in order to evaluate the company's ability to generate positive net cash flows in the future to meet its obligations and to pay dividends. In some cases, careful analysis of cash flows can provide early warning of impending financial problems, as was the case with **HOME DEPOT**.

Before moving on, it is important to reiterate that the statement of cash flows does not replace the income statement. The income statement summarizes the results of a company's operations, whereas the statement of cash flows summarizes a company's inflows and outflows of cash. Information contained in the income statement can be used to facilitate the preparation of a statement of cash flows; information in the statement of cash flows sheds some light on the company's ability to generate income in the future. The statement of cash flows and the income statement provide complementary information about different aspects of a business.

## to summarize

The statement of cash flows, one of the three primary financial statements, provides information about the cash receipts and payments of an entity during a period. It provides important information that complements the income statement and balance sheet.

**2**

Recognize the different types of information reported in the statement of cash flows.

**cash equivalents** Short-term, highly liquid investments that can easily be converted into cash.

Speaking of cash, what is the largest denomination ever printed by the U.S. Treasury Department? Go to **http://www.ustreas.gov/currency** to find out.

## WHAT INFORMATION IS REPORTED IN THE STATEMENT OF CASH FLOWS?

Accounting standards include specific requirements for the reporting of cash flows. The general format for a statement of cash flows, with details and dollar amounts omitted, is presented in Exhibit 13-2. As illustrated, the inflows and outflows of cash must be divided into three main categories: operating activities, investing activities, and financing activities. Further, the statement of cash flows is presented in a manner that reconciles the beginning and ending balances of cash and cash equivalents. **Cash equivalents** are short-term, highly liquid investments that can easily be converted into cash. Generally, only investments with maturities of three months or less qualify as cash equivalents. Examples are U.S. Treasury bills, money market funds, and commercial paper (short-term debt issued by corporations). In this chapter, as is common in practice, the term *cash* will be used to include cash and cash equivalents.

### Major Classifications of Cash Flows

Exhibit 13-3 shows the three main categories of cash inflows and outflows—operating, investing, and financing. Exhibit 13-4 summarizes the specific activities included in each category. Beginning with operating activities, each of the cash flow categories will be explained. We will also discuss the reporting of significant noncash transactions and events.

**OPERATING ACTIVITIES** **Operating activities** include those transactions and events that enter into the determination of net income. Cash receipts from the sale of goods or services are the major cash inflows for most businesses. Other inflows are cash receipts for interest revenue, dividend revenue, and similar items. Major outflows of cash are for the purchase of inventory and for the payment of wages, taxes, interest, utilities, rent, and similar expenses. As we will explain later, the amount of cash provided by (or used in) operating activities is a key figure and should be highlighted on the statement of cash flows.

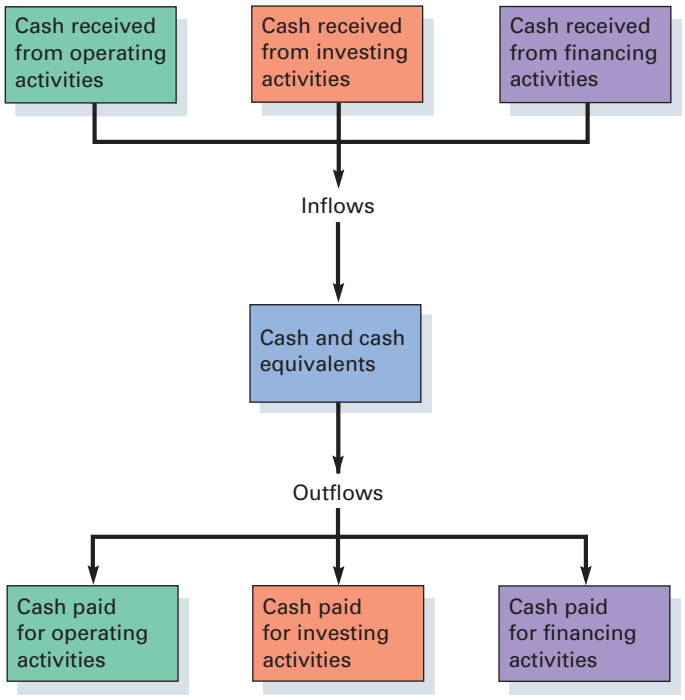
**operating activities** Transactions and events that enter into the determination of net income.

Note that our focus in analyzing operating activities is to determine cash flows from operations. An analysis is required to convert income from an accrual-basis to a cash-basis number.

**exhibit 13-2** General Format for a Statement of Cash Flows

| | |
|---|---|
| Cash provided by (used in): | |
| Operating activities | $XXX |
| Investing activities | XXX |
| Financing activities | XXX |
| Net increase (decrease) in cash and cash equivalents | $XXX |
| Cash and cash equivalents at beginning of year | XXX |
| Cash and cash equivalents at end of year | $XXX |

**exhibit 13-3** The Flow of Cash




**fyi**

Although cash inflows from interest and dividends logically might be classified as financing activities, the FASB has decided to classify them as operating activities, which conforms to their presentation on the income statement.

To do this, we begin with the net income figure, remove all items relating to investing activities (such as depreciation and gains/losses on the sale of equipment) and financing activities (such as gains/losses on retirement of debt), and then adjust for changes in those current assets and current liabilities that involve cash and relate to operations (which are most of the current assets and current liabilities).

Operating activities, including the sale of goods, help determine net income and are reported on the statement of cash flows.

**exhibit 13-4** Major Classifications of Cash Flows

*Operating Activities*
Cash receipts from:
- Sale of goods or services
- Interest revenue
- Dividend revenue
- Sale of investments in trading securities

Cash payments to:
- Suppliers for inventory purchases
- Employees for services
- Governments for taxes
- Lenders for interest expense
- Brokers for purchase of trading securities
- Others for other expenses (e.g., utilities, rent)

*Investing Activities*
Cash receipts from:
- Sale of property, plant, and equipment
- Sale of a business segment
- Sale of investments in securities other than trading securities
- Collection of principal on loans made to other entities

Cash payments to:
- Purchase property, plant, and equipment
- Purchase debt or equity securities of other entities (other than trading securities)
- Make loans to other entities

*Financing Activities*
Cash receipts from:
- Issuance of own stock
- Borrowing (e.g., bonds, notes, mortgages)

Cash payments to:
- Stockholders as dividends
- Repay principal amounts borrowed
- Repurchase an entity's own stock (treasury stock)

**investing activities** Transactions and events that involve the purchase and sale of securities (excluding cash equivalents), property, plant, equipment, and other assets not generally held for resale, and the making and collecting of loans.

**INVESTING ACTIVITIES** Transactions and events that involve the purchase and sale of securities (other than trading securities), property, buildings, equipment, and other assets not generally held for resale, and the making and collecting of loans are classified as **investing activities**. These activities occur regularly and result in cash inflows and outflows. They are not classified under operating activities because they relate only indirectly to the entity's central, ongoing operations, which usually involve the sale of goods or services.

The analysis of investing activities involves identifying those accounts on the balance sheet relating to investments (typically long-term asset accounts) and then explaining how those accounts changed and how those changes affected the cash flows for the period.

**fyi**

The purchase and sale of trading securities is classified as an operating activity.

**financing activities** Transactions and events whereby resources are obtained from, or repaid to, owners (equity financing) and creditors (debt financing).

**FINANCING ACTIVITIES** **Financing activities** include transactions and events whereby resources are obtained from or paid to owners (equity financing) and creditors (debt financing). Dividend payments, for example, fit this definition. As noted earlier, the receipt of dividends and interest and the payment of interest are classified under operating activities sim-

## business environment essay

**The W. T. Grant Company's Negative Cash Flows** Perhaps the most famous case highlighting the deficiencies of accrual-basis net income was that of the **W. T. GRANT COMPANY**. In 1906, William T. Grant opened his first 25-cent store in Lynn, Massachusetts. Twenty-two years later, stock of the W. T. Grant Company was offered for sale to the public. By 1953, the company had expanded to include over 500 stores, and the expansion continued into the 1960s. In 1969 alone, 410 new stores were opened. In 1973, the company's stock was selling at nearly 20 times earnings and peaked at $70⅝ per share. As late as September 1974, a group of banks loaned the company $600 million.

A careful analysis of W. T. Grant's financial statements, however, would have indicated that although the company was reporting profits through 1974, cash flows from operations were almost always negative from 1966 to 1975. Once the market realized the magnitude of W. T. Grant's cash flow problems, it reacted quickly. In December 1974, the company's stock was trading at $2 per share. The company closed 107 stores and laid off 7,000 employees in September 1975. On October 2, 1975, the nation's largest retailer filed for protection under Chapter 11 of the National Bankruptcy Act. Only four months later, the creditors' committee voted for liquidation, and W. T. Grant ceased to exist.

Why didn't creditors and stockholders see W. T. Grant's impending problems sooner? As the chart shows, net income and working capital provided by operations were of little help in predicting W. T. Grant's problems, but a careful analysis of the company's cash flows would have revealed the problems as much as a decade before the collapse.

How could this happen? Oddly enough, firms were not required to provide investors and creditors with information about cash flows until 1987. Prior to that time, companies prepared a statement of changes in financial position, which measured changes in current assets and current liabilities. This statement of changes in financial position provided information that, if not carefully interpreted, could lead one to believe that a buildup of inventory and receivables was as good as money in the bank (as was the case with W. T. Grant).

The requirement of a statement of cash flows eliminated many of the alternatives used by companies to detail their liquidity position. Now, under generally accepted accounting principles, companies must disclose their liquidity position in terms of cash. Had this standard been applied to W. T. Grant, the negative cash flows from operations would have been highlighted and easily detected.

**fyi**

The activities are typically listed in this order: operating, investing, and financing. However, there is no requirement that they be listed in this way. **MICROSOFT**, for example, uses this order: operating, financing, and investing.

ply because they are reported as a part of income on the income statement. The receipt or payment of the principal amount borrowed or repaid (but not the interest) is considered a financing activity.

Analyzing the cash flow effects of financing activities involves identifying those accounts relating to financing (typically long-term debt and common stock) and explaining how changes in those accounts affected the company's cash flows. Exhibit 13-5 summarizes the activities reflected on the statement of cash flows and indicates how the balance sheet and income statement accounts relate to the various activities.

## Noncash Investing and Financing Activities

Some investing and financing activities do not affect cash. For example, equipment may be purchased with a note payable, or land may be acquired by issuing stock. These noncash transactions are not reported in the statement of cash flows. However, if a company has significant noncash financing and investing activities, they should be disclosed in a separate schedule or in a narrative explanation. The disclosures may be presented below the statement of cash flows or in the notes to the financial statements.

Financial History of the W. T. Grant Company 1966–1975

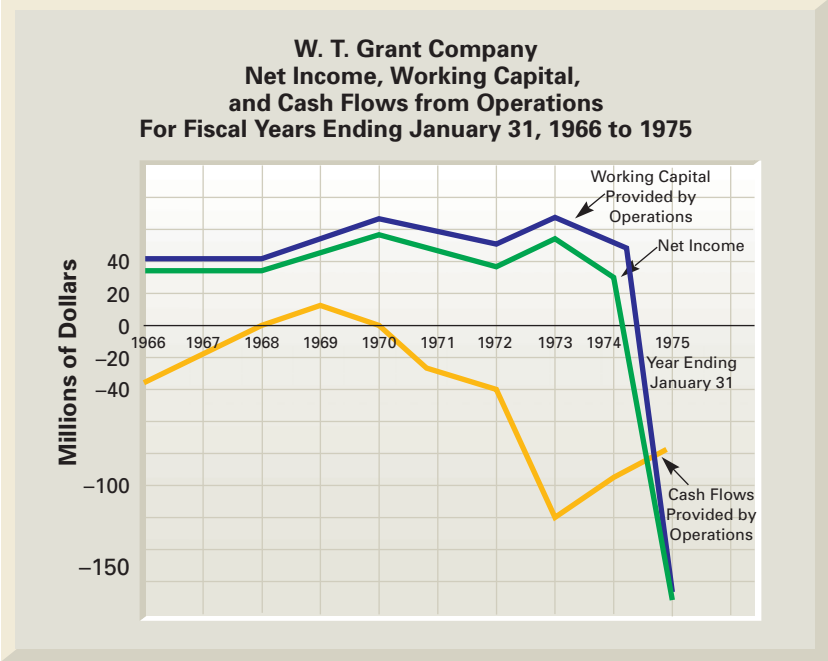



**exhibit 13-5** How Balance Sheet and Income Statement Accounts Relate to the Statement of Cash Flows

| Cash Flow Activity | Related Balance Sheet and Income Statement Accounts | Examples | Chapters in Which Accounts Were Covered |
|---|---|---|---|
| Operating | All income statement accounts **except** those income statement items relating to: | Sales, Cost of Goods Sold, Salaries Expense, etc. | Chs. 6–8 |
| | • Investing | Depreciation, Gains/Losses on Sale of Equipment | Ch. 9 |
| | • Financing | Gains/Losses on Retirement of Debt | Ch. 10 |
| | Current assets | Accounts Receivable | Ch. 6 |
| | | Inventory | Ch. 7 |
| | Current liabilities | Accounts Payable | Ch. 7 |
| Investing | Long-term assets | Property, Plant, and Equipment | Ch. 9 |
| | Long-term investments | Available-for-Sale and Held-to-Maturity Securities | Ch. 12 |
| Financing | Long-term debt | Bonds and Mortgages | Ch. 10 |
| | Stockholders' equity (except for net income in Retained Earnings) | Common Stock | Ch. 11 |
| | | Dividends | Ch. 11 |

## Cash Flow Patterns

Most U.S. companies (about 70%) report positive cash flows from operations. That shouldn't come as a big surprise because companies need to generate cash from operating activities to survive in the long term. In addition, about 85% of U.S. companies report negative cash flows from investing activities. Again, this is expected as companies must expand, enhance, or replace long-term assets. Predicting whether the sign for cash from financing activities will be positive or negative is more difficult. That sign depends on whether the company is young, growing, and in need of cash, or mature, stable, and flush with cash. As a company proceeds through the normal life cycle of a business, cash from financing typically will vary between positive and negative. As an example, in fiscal 2000 Home Depot reported positive cash flows from operations ($2.4 billion), negative cash flows from investing ($2.6 billion), and a small positive cash flow from financing ($281 million).

## to summarize

The statement of cash flows is presented in a manner that highlights three major categories of cash flows: operating activities, investing activities, and financing activities. In addition, the format of the statement should provide a reconciliation of the beginning and ending balances of cash and cash equivalents (short-term, highly liquid investments). Any significant noncash investing and financing activities should be disclosed separately, either below the statement of cash flows or in the notes to the financial statements.

**3** Prepare a simple statement of cash flows.

## PREPARING A STATEMENT OF CASH FLOWS—A SIMPLE EXAMPLE

Now that we have reviewed the three types of cash flow activities disclosed on the statement of cash flows, let's start with a simple example to see how easy (conceptually) a statement of cash flows is to prepare. For this example, we will begin with the following trial balance information for Silmaril, Inc.

**Silmaril, Inc.**
**Trial Balance**
**January 1, 2002**

| | Debit | Credit |
|---|---|---|
| Cash | $ 300 | |
| Accounts Receivable | 2,500 | |
| Inventory | 1,900 | |
| Property, Plant, and Equipment | 4,000 | |
| Accumulated Depreciation | | $1,200 |
| Accounts Payable | | 1,700 |
| Taxes Payable | | 40 |
| Long-Term Debt | | 2,200 |
| Common Stock | | 1,000 |
| Retained Earnings | | 2,560 |
| Totals | $8,700 | $8,700 |

The following transactions were conducted by Silmaril, Inc., during 2002:

1. Sales on account, $13,500.
2. Collections on account, $14,000.
3. Purchased inventory on account, $7,900.
4. Cost of goods sold, $8,000.
5. Paid accounts payable, $8,100.
6. Purchased property, plant, and equipment for cash, $1,700.
7. Sold property, plant, and equipment for cash, $500 (original cost, $1,200; accumulated depreciation, $800).
8. Paid long-term debt, $200.
9. Issued stock at par value, $450.
10. Recorded depreciation expense, $500.
11. Paid interest on debt, $180.
12. Recorded interest owed (accrued) but not paid, $20.
13. Paid miscellaneous expenses (e.g., wages, supplies, etc.) for the period, $3,200.
14. Recorded tax expense for the period, $450.
15. Paid taxes during the period, $440.

With this information, we can reconstruct the journal entries made by Silmaril, Inc., during the year:

| | | | |
|---|---|---|---|
| 1. | Accounts Receivable | 13,500 | |
| | Sales | | 13,500 |
| 2. | Cash | 14,000 | |
| | Accounts Receivable | | 14,000 |
| 3. | Inventory | 7,900 | |
| | Accounts Payable | | 7,900 |
| 4. | Cost of Goods Sold | 8,000 | |
| | Inventory | | 8,000 |
| 5. | Accounts Payable | 8,100 | |
| | Cash | | 8,100 |
| 6. | Property, Plant, and Equipment | 1,700 | |
| | Cash | | 1,700 |
| 7. | Cash | 500 | |
| | Accumulated Depreciation | 800 | |
| | Property, Plant, and Equipment | | 1,200 |
| | Gain on Sale of Equipment | | 100 |
| 8. | Long-Term Debt | 200 | |
| | Cash | | 200 |
| 9. | Cash | 450 | |
| | Common Stock | | 450 |
| 10. | Depreciation Expense | 500 | |
| | Accumulated Depreciation | | 500 |
| 11. | Interest Expense | 180 | |
| | Cash | | 180 |
| 12. | Interest Expense | 20 | |
| | Interest Payable | | 20 |
| 13. | Miscellaneous Expenses | 3,200 | |
| | Cash | | 3,200 |
| 14. | Tax Expense | 450 | |
| | Taxes Payable | | 450 |
| 15. | Taxes Payable | 440 | |
| | Cash | | 440 |

## business environment essay

**The Statement of Cash Flows—A Historical Perspective** The statement of cash flows is a relatively new financial statement. In 1987, the Financial Accounting Standards Board (FASB) issued an accounting standard, FASB Statement No. 95, requiring that the statement of cash flows be presented as one of the three primary financial statements. Previously, companies had been required to present a statement of changes in financial position, often called the funds statement. In 1971, APB Opinion No. 19 made the funds statement a required financial statement although many companies had begun reporting funds flow information several years earlier. The funds statement provided useful information, but it had several limitations. First, APB Opinion No. 19 allowed considerable flexibility in how funds could be defined and how they were reported on the statement. As a result, many companies reported on a working-capital basis (current assets minus current liabilities), whereas others reported on a cash basis or some other basis. Further, in each case, the individual company selected its own format. This inconsistency across companies made comparisons difficult.

Second, the funds statement, even when prepared on a cash basis, did not provide a complete and clear

When these journal entries are posted, the following trial balance results:

**Silmaril, Inc.**
**Trial Balance**
**December 31, 2002**

| | Debit | Credit |
|---|---|---|
| Cash | $ 1,430 | |
| Accounts Receivable | 2,000 | |
| Inventory | 1,800 | |
| Property, Plant, and Equipment | 4,500 | |
| Accumulated Depreciation | | $ 900 |
| Accounts Payable | | 1,500 |
| Interest Payable | | 20 |
| Taxes Payable | | 50 |
| Long-Term Debt | | 2,000 |
| Common Stock | | 1,450 |
| Retained Earnings | | 2,560 |
| Sales | | 13,500 |
| Gain on Sale of Equipment | | 100 |
| Cost of Goods Sold | 8,000 | |
| Depreciation Expense | 500 | |
| Interest Expense | 200 | |
| Tax Expense | 450 | |
| Miscellaneous Expenses | 3,200 | |
| Totals | $22,080 | $22,080 |

To this point, this is all a review—journalizing transactions, posting journal entries, and preparing a trial balance. From this trial balance, we can easily prepare an income statement

picture of a company's ability to generate positive cash flows. One reason is that APB Opinion No. 19 required that all investing and financing activities be reported in the statement, even those that did not affect cash or working capital. Another problem was that the funds statement usually included two sections—sources (inflows) and uses (outflows) of funds. Thus, the amount of working capital or cash provided or used by each major type of activity (operating, investing, and financing) was not identified.

The limitations of the funds statement often made it difficult to assess a company's ability to generate sufficient cash. Some companies were able to report favorable earnings in the income statement, even while experiencing serious cash flow problems that were not readily apparent from the information reported in the funds statement. For example, **ENDO-LASE**, a distributor of medical lasers, reported a 200% increase in sales in one year. Unfortunately, due to poor collection performance, receivables increased at an even faster rate than sales, and much of the reported increase in revenues took the form of IOUs. When many of these receivables were determined to be uncollectible, Endo-Lase had to restate its previously reported earnings. So, although reported earnings appeared strong, Endo-Lase's cash flows were actually negative, and eventually the company had to file for bankruptcy protection.

and a balance sheet; but our objective here is to prepare a statement of cash flows. With information from the Cash T-account, we can prepare a statement of cash flows. The Cash T-account would contain the following information (journal entry reference numbers are in parentheses):

**Cash**

| | | | |
|---|---|---|---|
| Beg. Bal. | 300 | | |
| (2) | 14,000 | (5) | 8,100 |
| (7) | 500 | (6) | 1,700 |
| (9) | 450 | (8) | 200 |
| | | (11) | 180 |
| | | (13) | 3,200 |
| | | (15) | 440 |
| End. Bal. | 1,430 | | |

Our task at this point is simply to categorize each cash inflow and outflow as an operating, investing, or financing activity. The inflows and outflows break down as follows:

| | | |
|---|---|---|
| *Operating Activities:* | | |
| Collections on account (2) | | $14,000 |
| Payments for inventory (5) | $ 8,100 | |
| Payments for miscellaneous expenses (13) | 3,200 | |
| Payment for interest (11) | 180 | |
| Payment for taxes (15) | 440 | (11,920) |
| Cash flows from operating activities | | $ 2,080 |
| *Investing Activities:* | | |
| Sold equipment (7) | $ 500 | |
| Purchased equipment (6) | (1,700) | |
| Cash flows from investing activities | | (1,200) |

| | | |
|---|---|---|
| *Financing Activities:* | | |
| Issued stock (9) | $ 450 | |
| Paid debt (8) | (200) | |
| Cash flows from financing activities | | 250 |
| Net increase in cash | | $ 1,130 |
| Beginning cash balance | | 300 |
| Ending cash balance | | $ 1,430 |

As you can see, if we have access to the detailed transaction data from the Cash T-account, preparing a statement of cash flows involves determining the proper cash flow category (operating, investing, or financing) for each inflow or outflow and then properly formatting the statement. More advanced accounting software programs allow financial statement preparers to categorize each cash inflow and outflow as an operating, investing, or financing activity and to prepare a statement of cash flows with the press of a key. Once considered one of the most difficult parts of accounting, preparing a statement of cash flows has been greatly simplified as a result of computer technology.

If information is properly coded when input into a computerized accounting system, the preparation of a statement of cash flows is easy. As mentioned, the more advanced accounting software facilitates this process. But what happens if an accounting system does not classify cash transactions according to their activities? In the next section, we discuss how a statement of cash flows is prepared if one does not have ready access to detailed cash inflow and outflow information.

## to summarize

If transactions are properly classified when input into the accounting system, the preparation of a statement of cash flows is straightforward. Cash inflows and outflows are segregated according to type of activity (operating, investing, or financing), and a statement of cash flows is prepared based on that information. As technology continues to advance, the preparation of a statement of cash flows is becoming easier.

**4**

Analyze financial statements to prepare a statement of cash flows.

## ANALYZING THE OTHER PRIMARY FINANCIAL STATEMENTS TO PREPARE A STATEMENT OF CASH FLOWS

If detailed cash flow information is not accessible, the preparation of a statement of cash flows is more difficult. The income statement and comparative balance sheets must be analyzed to determine how cash was generated and how cash was used by a business. How can we determine a company's cash inflows and outflows by looking at balance sheets and an income statement? The secret lies in remembering the basics of double-entry accounting: each journal entry has two parts—a debit and a credit. In the case of the cash account, every time Cash is debited, some other account is credited; every time Cash is credited, some other account is debited. If we don't have access to the details of the cash account, we can infer those details based on our knowledge of accounting and by analyzing changes in accounts other than Cash.

For example, consider the accounts receivable account. A debit to that account means what? Ninety-nine percent of the time, a debit to Accounts Receivable is associated with a sale on account. A credit to Accounts Receivable means what? Most likely, cash was collected. If we have the beginning and ending balances for the accounts receivable account (from comparative balance sheets) and sales for the period (from the income statement), we can infer the cash collected for the period. Consider the information taken from Silmaril's beginning trial balance and the year-end trial balance relating to Accounts Receivable (remember, we are assuming that the detailed journal entries are not available to us, only the resulting financial statements):

**Accounts Receivable**

| | | | |
|---|---|---|---|
| Beg. Bal. | 2,500 | | |
| Sales | 13,500 | Collections | ? |
| End. Bal. | 2,000 | | |

To reconcile the accounts receivable account, we can only assume that cash collections of $14,000 occurred. With any other amount the account will not reconcile.[3] In other words, we can infer that the following journal entry must have been made:

| | | |
|---|---|---|
| Cash | 14,000 | |
| Accounts Receivable | | 14,000 |

As you can see from this analysis, we don't necessarily need the detailed cash account information to prepare a statement of cash flows. We can use our knowledge of double-entry accounting to infer those details.

**caution**

Every balance sheet account (except Cash) must be analyzed to determine any cash flow effects. Then those effects must be classified by activity.

A similar analysis is conducted for every balance sheet account (except Cash). The analyses draw on our knowledge of the relationship between the income statement and balance sheet accounts and of what accounts are associated with operating, investing, and financing activities. Consider another example—Common Stock. First of all, we know that changes in the common stock account are considered financing activities. Second, what do we know about credits to the common stock account? They typically are associated with the issuance (sale) of stock. Debits to the common stock account? They are associated with the retirement of common stock. Assume we are given comparative balance sheet information (transactions in a company's own stock are not reflected on the income statement) relating to the common stock account of Silmaril, Inc., as follows:

| | Beginning Balance | Ending Balance |
|---|---|---|
| Common stock | $1,000 | $1,450 |

What would you infer about Silmaril's cash flow activities relating to its common stock account? Without any additional information, it would be safe to assume that the company sold stock

3 Some of you may be thinking that Accounts Receivable can be credited when accounts are written off. This is true, and write-offs would affect our analysis. However, our purpose here is to understand the concepts. A more complicated analysis including write-offs will be covered in an intermediate accounting class.

for $450. If something out of the ordinary happened in the common stock account (like the retirement of stock), that information would generally be available in the notes to the financial statements and would be used to modify the analysis.

As an illustration of this type of complexity, consider Silmaril's property, plant, and equipment (PP&E) account. First of all, the PP&E account is associated with what type of cash flow activity? Investing. Increases in property, plant, and equipment correspond to purchases of PP&E, and decreases relate to the sale of PP&E. Because the sale of PP&E is typically an out-of-the-ordinary type of transaction, we could look at the notes to the financial statements for information relating to any sales. In the case of Silmaril, Inc., we find that equipment costing $1,200, with accumulated depreciation of $800, was sold for $500. Based on this information, and using information from the comparative balance sheets, we can infer the purchases made during the period as follows:

**fyi**

Buying and using PP&E would be considered common activities. Selling PP&E would be considered less common.

**Property, Plant, and Equipment**

| | | | |
|---|---|---|---|
| Beg. Bal. | 4,000 | | |
| Purchases | ? | Sold | 1,200 |
| End. Bal. | 4,500 | | |

How much PP&E was purchased during the period? The only amount that will reconcile the PP&E account is $1,700. The journal entry would have been a debit to PP&E and a credit to Cash. Again, we find that we don't need the details of the cash account to be able to infer the cash inflows and outflows for the company. Our knowledge of double-entry accounting allows us to do a little detective work and infer what went on in the cash account.

## A Six-Step Process for Preparing a Statement of Cash Flows

Is there a systematic method for analyzing the income statement and comparative balance sheets to prepare a statement of cash flows? Yes, the following six-step process can be used in preparing a statement of cash flows:

1. Compute the change in the cash and cash-equivalent accounts for the period of the statement. Seldom is one handed a check figure in real life, but such is the case when preparing a statement of cash flows. The statement of cash flows is not complete until you have explained the change from the beginning balance in the cash account to the balance at year-end.
2. Convert the income statement from an accrual-basis to a cash-basis summary of operations. This is done in three steps: (1) eliminate from the income statement those expenses that do not involve cash (such **noncash items** would include depreciation expense that does not involve an outflow of cash in the current period even though income was reduced); (2) eliminate from the income statement the effects of nonoperating activity items (such items include gains and losses on the sale of long-term assets and gains and losses associated with the retirement of debt); and (3) identify those current asset and current liability accounts associated with the income statement accounts, and adjust those income statement accounts for the changes in the associated current assets and current liabilities. For example, Sales will be adjusted for the change between the beginning and ending balance in Accounts Receivable to derive the cash collections for the period. The final result will be cash flows from operating activities.
3. Analyze the long-term assets to identify the cash flow effects of investing activities. Changes in property, plant, and equipment and in long-term investments may indicate that cash has either been spent or been received.

**noncash items** Items included in the determination of net income on an accrual basis that do not affect cash; for example, depreciation and amortization.

Why must gains (losses) on the sale of equipment be subtracted (added) when computing cash flows from operations?

**caution**

Make sure that the total net cash flows from the statement (the sum of net cash flows from operating, investing, and financing activities) are equal to the net increase (decrease) in cash as computed in step 1.

4. Analyze the long-term debt and stockholders' equity accounts to determine the cash flow effects of any financing transactions. These transactions could be borrowing or repaying debt, issuing or buying back stock, or paying dividends.
5. Prepare a formal statement of cash flows by classifying all cash inflows and outflows according to operating, investing, and financing activities. The net cash flows provided by (used in) each of the three main activities of an entity should be highlighted. The net cash flows amount for the period is then added (subtracted) from the beginning Cash balance to report the ending Cash balance.
6. Report any significant investing or financing transactions that did not involve cash in a narrative explanation or in a separate schedule to the statement of cash flows. This would include such transactions as the purchase of land by issuing stock or the retirement of bonds by issuing stock.

## An Illustration of the Six-Step Process

We will illustrate this six-step process for preparing the statement of cash flows using the information from the Silmaril, Inc., example presented earlier. Remember that in this case we are assuming that we do not have access to the detailed cash flow information. Thus, we are going to have to make inferences about cash flows by examining all other balance sheet and income statement accounts other than the cash account.

**STEP 1. COMPUTE THE CHANGE IN THE CASH AND CASH-EQUIVALENT ACCOUNTS FOR THE PERIOD OF THE STATEMENT** Recall that Silmaril began the year with a Cash balance of $300 and ended with a Cash balance of $1,430. Thus, our objective in preparing the statement of cash flows is to explain why the cash account changed by $1,130 during the year.

**STEP 2. CONVERT THE INCOME STATEMENT FROM AN ACCRUAL BASIS TO A CASH BASIS** From the trial balance prepared at the end of the year, we can prepare the following income statement for Silmaril, Inc.:

| | |
|---|---|
| Sales | $13,500 |
| Cost of goods sold | 8,000 |
| Gross margin | $ 5,500 |
| Miscellaneous expenses | 3,200 |
| Depreciation expense | 500 |
| Income from operations | $ 1,800 |
| Interest expense | (200) |
| Gain on sale of equipment | 100 |
| Income before taxes | $ 1,700 |
| Tax expense | 450 |
| Net income | $ 1,250 |

Our objective at this point is to convert the income statement to cash flows from operations. Recall that this involves three steps: (1) eliminating expenses not involving cash, (2) eliminating the effects of nonoperating activities, and (3) adjusting the remaining figures from an accrual basis to a cash basis. We will use a work sheet to track the adjustments that will be made. The first two adjustments involve removing depreciation expense (because it does not involve an outflow of cash) and eliminating the gain on the sale of the equipment (because the sale of equipment is an investing activity, the effect of which will be disclosed in the investing activities section of the statement). The following work sheet reflects these adjustments:

| | Income Statement | Adjustments | Cash Flows from Operations |
|---|---|---|---|
| Sales | $13,500 | | |
| Cost of goods sold | (8,000) | | |
| Miscellaneous expenses | (3,200) | | |
| Depreciation expense | (500) | **+500 (not a cash flow item)** | 0 |
| Interest expense | (200) | | |
| Gain on sale of equipment | 100 | **−100 (not an operating activity)** | 0 |
| Tax expense | (450) | | |
| | $ 1,250 | | |

**caution**

When equipment is initially purchased, the cash outflow is reported as an investing activity. When the equipment is used, this use is recorded as depreciation and does not involve any cash flow even though it is reported as an expense on the income statement.

Note that because depreciation expense was initially subtracted to arrive at net income, our adjustment involves adding $500 back because no cash actually flowed out of the company relating to depreciation. The cash flow effect of the sale of the equipment should be reflected in the investing activities section of the statement of cash flows. Therefore, the effect of the gain must be removed from the operating activities section. Because the gain was initially added, we must subtract $100 as an adjustment to remove the effects of this investing activity from the operating activities section.

The adjustments now involve converting the remaining revenue and expense items from an accrual basis to a cash basis. Recall from our analysis earlier in this section that the amount of cash collected from customers differed from sales for the period. In fact, collections exceeded sales by $500 (explaining how the accounts receivable account declined by $500). An adjustment must be made to increase the accrual-basis sales figure to its cash-basis counterpart. We add $500 as illustrated below.

| | Income Statement | Adjustments | Cash Flows from Operations |
|---|---|---|---|
| Sales | $13,500 | **+500 (decrease in accounts receivable)** | $14,000 |
| Cost of goods sold | (8,000) | | |
| Miscellaneous expenses | (3,200) | | |
| Depreciation expense | (500) | +500 (not a cash flow item) | 0 |
| Interest expense | (200) | | |
| Gain on sale of equipment | 100 | −100 (not an operating activity) | 0 |
| Tax expense | (450) | | |
| | $ 1,250 | | |

**caution**

Remember that Cost of Goods Sold is subtracted from Sales. Adding $100 serves to reduce the negative number, and subtracting $200 makes the cost of goods sold figure a larger negative number.

Next, we turn our attention to Cost of Goods Sold. The statement of cash flows should reflect the amount of cash paid for inventory during the period. We can compute that amount by adjusting Cost of Goods Sold to reflect the inventory used this period but purchased last period, as well as inventory that was purchased last period and paid for this period.

Because Inventory declined for the period from a beginning balance of $1,900 to an ending balance of $1,800, we must adjust Cost of Goods Sold to reflect that it includes inventory that was purchased last period and used this period (explaining how the inventory balance declined). To reduce Cost of Goods Sold, our adjustment involves adding $100. The resulting number represents the amount of inventory purchased during the year. A similar adjustment is made for the change in the balance in Accounts Payable and reflects the amount of inventory paid for during the year. What event would cause Accounts Payable to decline?

Obviously, Accounts Payable would most likely decline because more was paid for this period than was purchased this period. If more was paid for this period, we are required to subtract an additional $200 to reflect the additional cash outflow. The net effect of these two adjustments is to convert the accrual-basis Cost of Goods Sold figure to the amount of inventory paid for during the year. The following T-account analysis shows the net effect of these two adjustments:

| Cash | | Inventory | | Accounts Payable | | Cost of Goods Sold | |
|---|---|---|---|---|---|---|---|
| | 8,100[C] | 1,900 | | | 1,700 | 8,000[A] | |
| | | | 8,000[A] | | 7,900[B] | | |
| | | 7,900[B] | | 8,100[C] | | | |
| | | 1,800 | | | 1,500 | | |

[A]Cost of inventory sold during the period (from the income statement).
[B]Inventory purchased during the period [solved for based on the beginning and ending Inventory balances and the cost of goods sold (A)].
[C]Inventory paid for during the period [solved for based on the beginning and ending Accounts Payable balances and the inventory purchased during the period (B)].

Updating our work sheet results in the following:

| | Income Statement | Adjustments | Cash Flows from Operations |
|---|---|---|---|
| Sales | $13,500 | +500 (decrease in accounts receivable) | $14,000 |
| Cost of goods sold | (8,000) | **+100 (decrease in inventory)** | (8,100) |
| | | **−200 (decrease in accounts payable)** | |
| Miscellaneous expenses | (3,200) | | |
| Depreciation expense | (500) | +500 (not a cash flow item) | 0 |
| Interest expense | (200) | | |
| Gain on sale of equipment | 100 | −100 (not an operating activity) | 0 |
| Tax expense | (450) | | |
| | $ 1,250 | | |

Because neither a miscellaneous expenses payable account nor a prepaid expenses account exists, we can safely assume that all the miscellaneous expenses were paid for in cash. Therefore, there would be no adjustment.

Both Interest Expense and Tax Expense require adjustments similar to that done for Accounts Payable and/or Inventory. Let's first adjust Interest Expense from an accrual basis to a cash basis. Note that Interest Payable increased from $0 at the beginning of the period to $20 at the end of the period. How would that happen? Obviously, if a payable account increases, the company owes for products and services it has purchased or used. In this case what was used is money. Interest expense for the period was $200, of which Silmaril has yet to pay $20. Thus, the cash flow related to interest must be $180—requiring an adjustment of $20.

Tax Expense is adjusted in a similar fashion. Because the amount of taxes owed increased from the beginning to the end of the period, Silmaril must have paid a lesser amount relating to taxes than is reflected on the income statement. Reviewing the T-account for Taxes Payable helps us see how that can be:

| Taxes Payable | | | |
|---|---|---|---|
| | | Beg. Bal. | 40 |
| Taxes paid during the period | ? | Amount related to tax expense | 450 |
| | | End. Bal. | 50 |

As you can determine, the only amount that will balance the above T-account is $440—the amount paid for taxes during the period. Because the income statement reflects expense of $450 related to taxes, yet the cash outflow was only $440, we must make an adjustment of $10. The work sheet, with these final adjustments, appears as follows:

| | Income Statement | Adjustments | Cash Flows from Operations |
|---|---|---|---|
| Sales | $13,500 | +500 (decrease in accounts receivable) | $14,000 |
| Cost of goods sold | (8,000) | +100 (decrease in inventory)<br>−200 (decrease in accounts payable) | (8,100) |
| Miscellaneous expenses | (3,200) | +0 | (3,200) |
| Depreciation expense | (500) | +500 (not a cash flow item) | 0 |
| Interest expense | (200) | **+20 (increase in interest payable)** | (180) |
| Gain on sale of equipment | 100 | −100 (not an operating activity) | 0 |
| Tax expense | (450) | **+10 (increase in taxes payable)** | (440) |
| | $ 1,250 | +830 net adjustment | $ 2,080 |

Note that the cash flows from operations figure obtained through an analysis of the income statement accounts and current asset and current liability accounts is the same figure obtained previously when we assumed access to the detailed cash account information. We should always get the same answer when the question is the same—"What were cash flows from operations?"

***The Direct and Indirect Methods*** Our final task relating to cash flows from operations relates to preparing the operating activities section of the statement of cash flows. At this point, we have two alternatives—the indirect method or the direct method.

**indirect method** A method of reporting net cash flows from operations that involves converting accrual-basis net income to a cash basis.

The **indirect method** begins with net income as reported on the income statement and then details the adjustments made to arrive at cash flows from operations. For Silmaril, Inc., it involves beginning with the net income figure and then listing the adjustments from the work sheet. In other words, the following highlighted portions of the work sheet are used.

| | Income Statement | Adjustments | Cash Flows from Operations |
|---|---|---|---|
| Sales | $13,500 | +500 (decrease in accounts receivable) | $14,000 |
| Cost of goods sold | (8,000) | +100 (decrease in inventory)<br>−200 (decrease in accounts payable) | (8,100) |
| Miscellaneous expenses | (3,200) | +0 | (3,200) |
| Depreciation expense | (500) | +500 (not a cash flow item) | 0 |
| Interest expense | (200) | +20 (increase in interest payable) | (180) |
| Gain on sale of equipment | 100 | −100 (not an operating activity) | 0 |
| Tax expense | (450) | +10 (increase in taxes payable) | (440) |
| | $ 1,250 | +830 net adjustment | $ 2,080 |

The operating activities section is formatted as follows:

| | | |
|---|---|---|
| *Operating Activities:* | | |
| Net income | | $1,250 |
| Add: Depreciation expense | $500 | |
| Decrease in accounts receivable | 500 | |
| Decrease in inventory | 100 | |
| Increase in interest payable | 20 | |
| Increase in taxes payable | 10 | |
| Less: Gain on sale of equipment | (100) | |
| Decrease in accounts payable | (200) | 830 |
| Cash flows from operations | | $2,080 |

**direct method** A method of reporting net cash flows from operations that shows the major classes of cash receipts and payments for a period of time.

Using the **direct method**, the operating activities section of a statement of cash flows is, in effect, a cash-basis income statement. Unlike the indirect method, the direct method does not start with net income. Instead, this method directly reports the major classes of operating cash receipts and payments of an entity during a period. This information is obtained from the last column of the work sheet as follows:

| | Income Statement | Adjustments | Cash Flows from Operations |
|---|---|---|---|
| Sales | $13,500 | +500 (decrease in accounts receivable) | $14,000 |
| Cost of goods sold | (8,000) | +100 (decrease in inventory)<br>−200 (decrease in accounts payable) | (8,100) |
| Miscellaneous expenses | (3,200) | +0 | (3,200) |
| Depreciation expense | (500) | +500 (not a cash flow item) | 0 |
| Interest expense | (200) | +20 (increase in interest payable) | (180) |
| Gain on sale of equipment | 100 | −100 (not an operating activity) | 0 |
| Tax expense | (450) | +10 (increase in taxes payable) | (440) |
| | $ 1,250 | +830 net adjustment | $ 2,080 |

The resulting operating activities section, given below, looks a lot like the operating activities section we prepared when we had access to the detailed cash flow information.

| | | |
|---|---|---|
| *Operating Activities:* | | |
| Collections from customers | | $14,000 |
| Payments for inventory | $8,100 | |
| Payments for miscellaneous expenses | 3,200 | |
| Payments for interest | 180 | |
| Payments for taxes | 440 | (11,920) |
| Cash flows from operating activities | | $ 2,080 |

Now that you have seen both methods for preparing the operating activities section of the statement of cash flows, which method do you prefer? Which method do you think is used most often by companies?

Note that the same amount of cash flows from operating activities is derived using either the indirect method or the direct method.

*Why Two Methods?* You may be wondering, "Why are there two methods for preparing a statement of cash flows when both methods always result in the same answer?" Good question. Each method has advantages and disadvantages. Most companies prefer and use the indirect method because it is relatively easy

to apply and reconciles the difference between net income and the net cash flows provided by operations. Many users of financial statements favor the direct method because it reports the sources of cash inflows and outflows directly without the potentially confusing adjustments to net income. The accounting standard-setters considered the arguments for both methods, and although they preferred the clarity of the direct method, they permitted either method to be used. Because they can choose either method and already have to compute net income, approximately 95% of large U.S. corporations use the indirect method when preparing a statement of cash flows.

***Some Rules of Thumb*** Although all this analysis may seem complex, the guidelines below will help you as you analyze accounts and prepare a statement of cash flows.

| Accounts | Direction of Change during the Period | Adjustment to Be Made |
|---|---|---|
| Current assets | Increase | Subtracted |
| Current assets | Decrease | Added |
| Current liabilities | Increase | Added |
| Current liabilities | Decrease | Subtracted |

**caution**

These guidelines will help you to understand *how* certain adjustments are made, but they will not help you understand *why* the adjustments are being made. To understand why, you must use your knowledge of accounting.

When current assets increase (decrease) during the period, the difference between the beginning and ending balances is subtracted (added) from the appropriate income statement account to arrive at cash flows for the period. As an example, if accounts receivable increase during the period, that means sales exceed collections and Sales on the income statement must be reduced to reflect the cash collected for the period. The reverse would be true when accounts receivable decrease.

In the case of current liabilities, an increase (decrease) requires that an adjustment be made to add (subtract) the difference between the beginning and ending balances. For example, when interest payable increases from the beginning to the end of the period, interest expense exceeds the cash paid during the period. Interest Expense must be reduced (by adding back) to reflect the cash paid during the period. Again, the reverse would be true if interest payable were to decrease during the period. Exhibit 13-6 summarizes the procedures for converting selected accounts from an accrual to a cash basis.

**STEP 3. ANALYZE THE LONG-TERM ASSETS TO IDENTIFY THE CASH FLOWS EFFECT OF INVESTING ACTIVITIES** The only long-term asset account for Silmaril, Inc., is the property, plant, and equipment (PP&E) account with its associated accumulated depreciation. The balance in the PP&E account increased by $500 during the period. What does an increase in the PP&E account indicate? Obviously, something was purchased. If we had no additional information, we would assume that PP&E was purchased by paying $500. But we do have additional information. We know that PP&E was purchased during the period by paying $1,700. With that information, we can prepare the following PP&E T-account:

**Property, Plant, and Equipment**

| | | | |
|---|---|---|---|
| Beg. Bal. | 4,000 | | |
| Purchased | 1,700 | Sold | ? |
| End. Bal. | 4,500 | | |

To make the T-account balance, equipment must have been sold. What was the original cost of the equipment that was sold? It must have been $1,200 (that is the only number that will make the T-account balance). What was the accumulated depreciation associated with the sold equipment? Let's take a look at the accumulated depreciation T-account. Entries on the debit side of that account track the accumulated depreciation associated with

**exhibit 13-6** Guidelines for Converting from Accrual to Cash Basis

| Accrual Basis | ± | Adjustments Required | = | Cash Basis |
|---|---|---|---|---|
| Net sales | + | Beginning accounts receivable* | = | Cash receipts from customers |
| | − | Ending accounts receivable* | | |
| Other revenues (e.g., rent and interest): | | | | |
| Rent revenue | + | Ending unearned rent | = | Cash received for rent |
| | − | Beginning unearned rent | | |
| Interest revenue | + | Beginning interest receivable | = | Cash received for interest |
| | − | Ending interest receivable | | |
| Cost of goods sold | + | Ending inventory | = | Cash paid for inventory |
| | − | Beginning inventory | | |
| | + | Beginning accounts payable | | |
| | − | Ending accounts payable | | |
| Operating expenses** (e.g., insurance and wages) | | | | |
| Insurance expense | + | Ending prepaid insurance | = | Cash paid for insurance |
| | − | Beginning prepaid insurance | | |
| Wages expense | + | Beginning wages payable | = | Cash paid for wages |
| | − | Ending wages payable | | |
| Income tax expense | + | Beginning income taxes payable | = | Cash paid for income taxes |
| | − | Ending income taxes payable | | |
| | | | | Net cash flows provided by (used in) operating activities |

* Net of allowance for uncollectible accounts.
**Excluding depreciation and other noncash items.

equipment that has been sold. Entries to the credit side are associated with depreciation expense for the period. Because we know depreciation expense for the period (from the income statement), and we know the beginning and ending balances in the account (from the balance sheet), we can infer the accumulated depreciation associated with the equipment that was sold.

**Accumulated Depreciation**

| | | | |
|---|---|---|---|
| | | Beg. Bal. | 1,200 |
| Sold | ? | Depreciation Expense | 500 |
| | | End. Bal. | 900 |

The accumulated depreciation associated with the equipment that was sold must have been $800. In addition, we know from the income statement that the sale resulted in a gain of $100. With this information, we can infer that the following journal entry was made relating to the sale of PP&E:

| | | |
|---|---|---|
| Cash | 500 | |
| Accumulated Depreciation | 800 | |
| Property, Plant, and Equipment | | 1,200 |
| Gain on Sale of Equipment | | 100 |

As you can see, we can determine the amount of cash received from the sale of PP&E by monitoring the change in other related accounts on the income statement and balance sheet.

As Silmaril's only investing activity related to the PP&E account, we have analyzed all the changes in that account and are now ready to prepare the investing activities section of the statement of cash flows. Had Silmaril bought or sold available-for-sale or held-to-maturity securities during the year, we would need to analyze these accounts to determine any cash flow effects. The investing activities section of the statement of cash flows for Silmaril, Inc., would be as follows:

| | | |
|---|---|---|
| *Investing Activities:* | | |
| Proceeds from the sale of property, plant, and equipment | $ 500 | |
| Purchased property, plant, and equipment | (1,700) | |
| Cash flows from investing activities | | (1,200) |

**STEP 4. ANALYZE THE LONG-TERM DEBT AND STOCKHOLDERS' EQUITY ACCOUNTS TO DETERMINE THE CASH FLOW EFFECTS OF ANY FINANCING TRANSACTIONS** Consider long-term debt accounts. What would make them increase? What would make them decrease? Obviously, these debt accounts would increase when a company borrows more money (an inflow of cash) and decrease when the company pays back the debt (an outflow of cash). In the case of Silmaril, we observe that the company's long-term debt account declined from $2,200 to $2,000. Unless something unusual happened (such as additional debt was issued and then some debt was repaid), we assume that the reason for the decrease was that cash was used to reduce the liability.

In the case of stockholders' equity accounts, we examine both the common stock and retained earnings accounts for increases and decreases resulting from cash flows. The common stock account will increase as a result of the sale of stock and decrease if any stock is repurchased and retired. Because the common stock account increased by $450 during the period, we assume that the increase resulted from the sale of stock. Again, if an unusual transaction had occurred, information relating to the transaction would be available in the notes. Retained Earnings increases from the recognition of net income (an operating activity) and decreases as a result of net losses (also an operating activity) or through the payment of dividends (a financing activity). In the case of Silmaril, Inc., because no dividends are disclosed on the trial balance, the entire change in Retained Earnings results from net income; the cash flow effect has already been included in operating activities.

Silmaril, Inc., would prepare the following information relating to its financing activities:

| | | |
|---|---|---|
| *Financing Activities:* | | |
| Proceeds from the sale of stock | $ 450 | |
| Repayment of long-term debt | (200) | |
| Cash flows from financing activities | | 250 |

**STEP 5. PREPARE A FORMAL STATEMENT OF CASH FLOWS** Based on our analysis of all income statement and balance sheet accounts, we have identified all inflows and outflows of cash for Silmaril, Inc., and categorized those cash flows based on the type of activity. The resulting statement of cash flows (prepared using the direct method)[4] would be as follows:

4 A statement of cash flows prepared using the indirect method is shown in the Review Problem on pages 644–646. The statement of cash flows for **MICROSOFT**, shown in Appendix A, was also prepared using the indirect method.

| | | |
|---|---|---|
| *Operating Activities:* | | |
| Collections from customers | | $14,000 |
| Payments for inventory | $ 8,100 | |
| Payments for miscellaneous expenses | 3,200 | |
| Payments for interest | 180 | |
| Payments for taxes | 440 | (11,920) |
| Cash flows from operating activities | | $ 2,080 |
| *Investing Activities:* | | |
| Proceeds from the sale of property, plant, and equipment | $ 500 | |
| Purchased property, plant, and equipment | (1,700) | |
| Cash flows from investing activities | | (1,200) |
| *Financing Activities:* | | |
| Proceeds from the sale of stock | $ 450 | |
| Repayment of long-term debt | (200) | |
| Cash flows from financing activities | | 250 |
| Net increase in cash | | $ 1,130 |
| Beginning cash balance | | 300 |
| Ending cash balance | | $ 1,430 |

Additional disclosure is required in the notes to the financial statements depending on the method used. Other disclosures required by FASB Statement No. 95 include the amounts paid for interest and income taxes. When the indirect method is used to report cash flows from operating activities, cash paid for interest and income taxes is disclosed as supplemental. When the direct method is used to report cash flows from operating activities, these amounts are included in the statement of cash flows.

An additional disclosure required when the direct method is used is a schedule reconciling net income with net cash flows provided by (used in) operating activities. This schedule is, in effect, the same as the operating activities section of a statement of cash flows prepared using the indirect method.

**noncash transactions** Investing and financing activities that do not affect cash; if significant, they are disclosed below the statement of cash flows or in the notes to the financial statements.

**STEP 6. REPORT ANY SIGNIFICANT INVESTING OR FINANCING TRANSACTIONS THAT DID NOT INVOLVE CASH** If Silmaril had any significant **noncash transactions**, such as purchasing PP&E by issuing debt or trading Silmaril stock for that of another company, these transactions would be disclosed in the notes to the financial statements or in a separate schedule below the statement of cash flows. In this example, no such transactions occurred.

## to summarize

The cash inflows and outflows of an organization must be analyzed and classified into one of three categories: operating, investing, and financing. Operating activities include those transactions that enter into the determination of net income. The direct or the indirect method may be used to show the net cash flows provided by (used in) operating activities. The indirect method starts with net income, as reported on the income statement, and adds or subtracts adjustments to convert accrual net income to net cash flows from operations. Adjustments to net income are made for increases and decreases in operating account balances, noncash items such as depreciation, and gains and losses from the sale of assets. The direct method shows the major classes of operating cash receipts and payments. The direct method requires analysis of cash transactions or an analysis of accrual revenues and expenses in

order to convert them to cash receipts and payments. Both methods produce the same results, and either method is allowed under generally accepted accounting principles. Investing activities involve the purchase or sale of long-term assets like property, plant, and equipment or investment securities. Financing activities include transactions in which cash is obtained from or paid to owners and creditors.

---

5

Use information from the statement of cash flows to make decisions.

## USING INFORMATION FROM THE STATEMENT OF CASH FLOWS TO MAKE DECISIONS

To this point in the text, we have reviewed numerous financial statement analysis techniques involving the income statement and the balance sheet. We have introduced and discussed vertical and horizontal analysis, and we have used numerous ratios that were computed using numbers from the income statement and the balance sheet. We can also use information from the statement of cash flows for analysis purposes.

Analysis using cash flow information is often restricted to examining the relationships among the categories in the statement of cash flows. We do not perform vertical or horizontal analysis because, unlike the balance sheet and income statement, there is no guarantee that a specific number from the statement of cash flows will consistently serve as the denominator for scaling purposes. For example, all balance sheet accounts are compared to total assets when preparing a vertical analysis of the balance sheet. Why? The reason is that total assets is always going to be the biggest number on the balance sheet. The same is true for the income statement. Revenue is used because it is, in almost every case, the biggest number on the income statement. In the case of the statement of cash flows, some years the cash flow from operations may be the largest number on the statement. In subsequent years, that number may be negative. Thus, horizontal and vertical analyses are rarely performed using the statement of cash flows because of scaling problems.

Although the statement of cash flows, like the other financial statements, reports information about the past, careful analysis of this information can help investors, creditors, and others assess the amounts, timing, and uncertainty of future cash flows. Specifically, the statement helps users answer questions such as how a company is able to pay dividends when it had a net loss, or why a company is short of cash despite increased earnings. A statement of cash flows may show, for example, that external borrowing or the issuance of capital stock provided the cash from which dividends were paid even though a net loss was reported for that year. Similarly, a company may be short on cash, even with increased earnings, because of increased inventory purchases, plant expansion, or debt retirement.

Trends are often more important than absolute numbers for any one period. Accordingly, cash flow statements usually are presented on a comparative basis. This enables users to analyze a company's cash flows over time.

Because companies are required to highlight cash flows from operating, investing, and financing activities, a company's operating cash flows and investing and financing policies can be compared with those of other companies. We can learn much about a company by examining patterns that appear among the three cash flow categories in the statement of cash flows. Exhibit 13-7 shows eight possible cash flow patterns and provides some insight into what each cash flow pattern indicates about the company.

Positive cash flows from operations are necessary if a company is to succeed over the long term (patterns 1 through 4). The most common cash flow pattern is 2. Companies use cash flows from operations to purchase fixed assets or to pay down debt. Growing companies follow cash flow pattern 6. Cash is being borrowed to cover a shortage of cash from operations as well as to purchase fixed assets. Most (about 80%) of the publicly traded companies in the United States follow patterns 2, 4, and 6.

**exhibit 13-7** Analysis of Cash Flows Statement: Patterns

| | CF from Operating | CF from Investing | CF from Financing | General Explanation |
|---|---|---|---|---|
| #1 | + | + | + | Company is using cash generated from operations, from sale of assets, and from financing to build up pile of cash—very liquid company—possibly looking for acquisition. |
| #2 | + | – | – | Company is using cash flows generated from operations to buy fixed assets and to pay down debt or pay owners. |
| #3 | + | + | – | Company is using cash from operations and from sale of fixed assets to pay down debt or pay owners. |
| #4 | + | – | + | Company is using cash from operations and from borrowing (or from owner investment) to expand. |
| #5 | – | + | + | Company's operating cash flow problems are covered by sale of fixed assets, by borrowing, or by stockholder contributions. |
| #6 | – | – | + | Company is growing rapidly, but has shortfalls in cash flows from operations and from purchase of fixed assets financed by long-term debt or new investment. |
| #7 | – | + | – | Company is financing operating cash flow shortages and payments to creditors and/or stockholders via sale of fixed assets. |
| #8 | – | – | – | Company is using cash reserves to finance operation shortfall and pay long-term creditors and/or investors. |

**Source:** Michael T. Dugan, Benton E. Gup, and William D. Samson, "Teaching the Statement of Cash Flows," *Journal of Accounting Education*, Vol. 9, 1991, p. 36.

## to summarize

Conducting financial statement analysis using information from the statement of cash flows is more difficult than analyses using information from the income statement and the balance sheet. The primary reason is that it is common for

cash flows for certain categories to be negative, thereby making interpretation difficult. Nevertheless, an analysis of the relationships among the categories on the statement of cash flows can provide insight into a company's performance.

## review of learning objectives

**1 Understand the purpose of a statement of cash flows.** The statement of cash flows is one of the three primary financial statements presented by companies in their annual reports. Its primary purpose is to provide information about the cash receipts and payments of an entity during a period. The statement of cash flows also explains the changes in the balance sheet accounts and the cash effects of the accrual-basis amounts reported in the income statement.

**2 Recognize the different types of information reported in the statement of cash flows.** The statement of cash flows reports an entity's inflows and outflows of cash for a period of time and reconciles the beginning and ending balances of cash and cash equivalents.

The inflows and outflows of cash should be classified and reported for three main categories: operating activities, investing activities, and financing activities. Cash receipts and payments classified under operating activities generally include all items that enter into the determination of net income. Examples include receipts from the sale of goods or services and from interest, and the payments for inventory, wages, utilities, taxes, and interest.

Investing activities include the purchase and sale of certain securities (other than cash equivalents, which are included with cash), buildings and equipment, and other assets that generally are not purchased for resale by the entity. Also included are the making and collecting of loans.

Financing activities include obtaining and repaying cash from owners (equity financing) and from creditors (debt financing). Selling stock, paying cash dividends, and borrowing money, for example, are included under this category.

Significant noncash transactions involving investing and financing activities should be reported in a note or in a separate schedule to the financial statements. Because such transactions do not involve cash flows, they should not be reported in the statement of cash flows. An example would be the purchase of land by the issuance of stock.

**3 Prepare a simple statement of cash flows.** If cash inflows and outflows can be categorized according to the activity (operating, investing, or financing) when entered into the accounting system, the preparation of a statement of cash flows is straightforward. At the end of the period, inflows and outflows are divided by category and type of cash flow, e.g., collections from customers, payments for inventory, etc. A statement of cash flows then simply lists those inflows and outflows by activity.

**4 Analyze financial statements to prepare a statement of cash flows.** Often, detailed cash flow information is not available. When that happens, the statement of cash flows is prepared by analyzing comparative balance sheets and the income statement. A six-step process can be employed to assist in the analysis. First, the change in the cash balance for the period is computed. Second, the income statement is converted from an accrual basis to a cash basis. The result is cash flows from operating activities. Third, long-term assets are analyzed to determine the cash flow effects of investing activities. Fourth, long-term liabilities and stockholders' equity accounts are analyzed to determine the cash flow effects of financing activities. Fifth, a formal statement of cash flows is prepared. And sixth, significant noncash transactions are disclosed in the notes to the financial statements or in a separate schedule at the bottom of the statement of cash flows.

**5 Use information from the statement of cash flows to make decisions.** A careful analysis of the statement of cash flows will indicate shifts in a company's operating, investing, and financing policies. The statement explains the change in the cash balance during the period by identifying the inflows and outflows of cash. This helps investors and creditors observe trends related to a company's use of operating income and to its use of external sources of capital such as the issuance of stock or bonds. Used with the income statement and the balance sheet, the statement of cash flows is a valuable source of information.

## key terms and concepts

cash equivalents 619
direct method 635
financing activities 621
indirect method 634
investing activities 621
noncash items 630
noncash transactions 639
operating activities 619
statement of cash flows 618

## review problems

### Classifying Cash Flows

Anna Dimetros is the bookkeeper for Russia Imports, Inc. (RII), a New York City–based company. Anna has collected the following cash flow information about RII for the most current year of operations. The cash balance at the beginning of the year was $105,000.

| | |
|---|---|
| **Cash receipts:** | |
| Cash received from issuance of stock | $ 50,000 |
| Cash received from customers | 252,300 |
| Cash received from interest at bank | 4,600 |
| Cash received from borrowing at bank | 25,000 |
| Total cash receipts | $331,900 |
| **Cash payments:** | |
| Cash paid for wages of employees | $134,600 |
| Cash paid to stockholders as dividends | 5,500 |
| Cash paid to bank for interest | 7,200 |
| Cash paid to bank to repay earlier loan | 10,000 |
| Cash paid for taxes | 23,500 |
| Cash paid for operating expenses | 128,100 |
| Cash paid for equipment | 15,000 |
| Total cash payments | $323,900 |

*Required:*

1. From the information provided, classify the cash flows for Russia Imports, Inc., according to operating, investing, and financing activities.
2. Determine the ending cash balance.

### Solution

**Russia Imports, Inc.**
**Cash Flows**
**20XX**

| | | | |
|---|---|---|---|
| 1. | *Cash flows from operating activities:* | | |
| | Cash receipts from: | | |
| | Customers | $252,300 | |
| | Bank (interest) | 4,600 | $256,900 |
| | Cash payments to: | | |
| | Employees (wages) | $134,600 | |
| | Bank (interest) | 7,200 | |
| | Government (taxes) | 23,500 | |
| | Various entities (operating expenses) | 128,100 | 293,400 |
| | Net cash flows used in operating activities | | $ (36,500) |
| | *Cash flows from investing activities:* | | |
| | Cash payments to: | | |
| | Purchase equipment | $ (15,000) | |
| | Net cash flows used in investing activities | | $ (15,000) |

*(continued)*

| | | | |
|---|---|---|---|
| | *Cash flows from financing activities:* | | |
| | Cash receipts from: | | |
| | Issuance of stock | $ 50,000 | |
| | Borrowing at bank | 25,000 | $ 75,000 |
| | Cash payments to: | | |
| | Stockholders (dividends) | $ (5,500) | |
| | Repay earlier loan | (10,000) | (15,500) |
| | Net cash flows provided by financing activities | | $ 59,500 |
| | Total net cash flows for period | | $ 8,000 |
| 2. | Beginning cash balance | | $105,000 |
| | Total net cash flows for period | | 8,000 |
| | Ending cash balance | | $113,000* |

*Alternatively, beginning balance ($105,000) + receipts ($331,900) − payments ($323,900) = ending balance ($113,000).

**Preparing a Statement of Cash Flows**

Snow Corporation produces clock radios. Comparative income statements and balance sheets for the years ended December 31, 2003 and 2002, are presented.

**Snow Corporation**
**Comparative Income Statements**
**For the Years Ended December 31, 2003 and 2002**

| | 2003 | 2002 |
|---|---|---|
| Net sales revenue | $600,000 | $575,000 |
| Cost of goods sold | 500,000 | 460,000 |
| Gross margin | $100,000 | $115,000 |
| Operating expenses | 66,000 | 60,000 |
| Operating income | $ 34,000 | $ 55,000 |
| Interest expense | 4,000 | 3,000 |
| Income before taxes | $ 30,000 | $ 52,000 |
| Income taxes | 12,000 | 21,000 |
| Net income | $ 18,000 | $ 31,000 |

**Snow Corporation**
**Comparative Balance Sheets**
**December 31, 2003 and 2002**

| | 2003 | 2002 |
|---|---|---|
| **Assets** | | |
| *Current assets:* | | |
| Cash and cash equivalents | $ 11,000 | $ 13,000 |
| Accounts receivable (net) | 92,000 | 77,000 |
| Inventory | 103,000 | 92,000 |
| Prepaid expenses | 6,000 | 5,000 |
| Total current assets | $212,000 | $187,000 |
| *Property, plant, and equipment:* | | |
| Land | $ 69,000 | $ 66,000 |
| Machinery and equipment | 172,000 | 156,000 |
| Accumulated depreciation, machinery and equipment | (113,000) | (102,000) |
| Total property, plant, and equipment | $128,000 | $120,000 |
| Total assets | $340,000 | $307,000 |

*(continued)*

| | 2003 | 2002 |
|---|---|---|
| **Liabilities and Stockholders' Equity** | | |
| *Current liabilities:* | | |
| Accounts payable | $ 66,000 | $ 78,000 |
| Dividends payable | 2,000 | 0 |
| Income taxes payable | 3,000 | 5,000 |
| Total current liabilities | $ 71,000 | $ 83,000 |
| Long-term debt | 75,000 | 42,000 |
| Total liabilities | $146,000 | $125,000 |
| *Stockholders' equity:* | | |
| Common stock, no par | $ 26,000 | $ 26,000 |
| Retained earnings | 168,000 | 156,000 |
| Total stockholders' equity | $194,000 | $182,000 |
| Total liabilities and stockholders' equity | $340,000 | $307,000 |

The following additional information is available.

a. Dividends declared during 2003 were $6,000.
b. The market price per share of stock on December 31, 2003, was $14.50.
c. Equipment worth $16,000 was acquired by the issuance of a long-term note ($10,000) and by paying cash ($6,000).
d. Land was acquired for $3,000 cash.
e. Depreciation of $11,000 was included in operating expenses for 2003.
f. There were no accruals or prepaid amounts for interest.

*Required:* Analyze the data provided to prepare a statement of cash flows. Use (1) the indirect method and (2) the direct method to report cash flows from operating activities.

**Solution** **1. Indirect Method**

**Snow Corporation**
**Statement of Cash Flows (Indirect Method)**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| *Cash flows from operating activities:* | | |
| Net income | $ 18,000 | |
| Add (deduct) adjustments to cash basis: | | |
| Depreciation expense | 11,000 | |
| Increase in accounts receivable | (15,000) | |
| Increase in inventory | (11,000) | |
| Increase in prepaid expenses | (1,000) | |
| Decrease in accounts payable | (12,000) | |
| Decrease in income taxes payable | (2,000) | |
| Net cash flows used in operating activities | | $(12,000) |
| *Cash flows from investing activities:* | | |
| Cash payments for: | | |
| Land | $ (3,000) | |
| Machinery and equipment | (6,000) | |
| Net cash flows used in investing activities | | (9,000) |
| *Cash flows from financing activities:* | | |
| Cash receipts from long-term borrowing | $ 23,000 | |
| Cash payments for dividends | (4,000)* | |
| Net cash flows provided by financing activities | | 19,000 |
| Net decrease in cash | | $ (2,000) |
| Cash and cash equivalents at beginning of year | | 13,000 |
| Cash and cash equivalents at end of year | | $ 11,000 |

*Cash dividends declared ($6,000) less increase in dividends payable ($2,000).

*(continued)*

| | |
|---|---|
| *Supplemental disclosure:* | |
| Cash payments for: | |
| Interest | $ 4,000 |
| Income taxes | 14,000 |
| Noncash transaction: | |
| Equipment was purchased by issuing a long-term note for $10,000. | |

The statement of cash flows for Snow Corporation shows that although reported net income was positive for 2003, the net cash flows generated from operating activities were negative. Only by borrowing cash was Snow Corporation able to pay dividends and purchase land and equipment. Even then the cash account decreased by $2,000 during the period.

**2. Direct Method**

**Snow Corporation**
**Statement of Cash Flows (Direct Method)**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| *Cash flows from operating activities:* | | |
| Cash receipts from customers | | $585,000 |
| Cash payments for: | | |
| Inventory | $523,000 | |
| Operating expenses | 56,000 | |
| Interest expense | 4,000 | |
| Income tax expense | 14,000 | (597,000) |
| Net cash flows used in operating activities | | $ (12,000) |
| *Cash flows from investing activities:* | | |
| Cash payments for: | | |
| Land | $ (3,000) | |
| Machinery and equipment | (6,000) | |
| Net cash flows used in investing activities | | (9,000) |
| *Cash flows from financing activities:* | | |
| Cash receipts from long-term borrowing | $ 23,000 | |
| Cash payments for dividends | (4,000) | |
| Net cash flows provided by financing activities | | 19,000 |
| Net decrease in cash | | $ (2,000) |
| Cash and cash equivalents at beginning of year | | 13,000 |
| Cash and cash equivalents at end of year | | $ 11,000 |
| *Supplemental Disclosure** | | |
| Equipment was purchased by issuing a long-term note for $10,000. | | |

*A schedule reconciling net income with net cash flow used by operating activities would also be presented, either with the statement of cash flows or in the notes to the financial statements. The information provided in the schedule is the same as the operating activities section of the statement of cash flows prepared using the indirect method (see part 1).

## discussion questions

1. What is the main purpose of a statement of cash flows?
2. What are cash equivalents, and how are they treated on a statement of cash flows?
3. Distinguish among cash flows from operating, investing, and financing activities, providing examples for each type of activity.

4. How are significant noncash investing and financing transactions to be reported?
5. Describe the process of converting from accrual revenues to cash receipts.
6. Describe the six-step process that can be used to prepare a statement of cash flows by analyzing the income statement and comparative balance sheets.
7. Distinguish between the indirect and direct methods of reporting net cash flows provided by (used in) operating activities.
8. How are depreciation and similar noncash items treated on a statement of cash flows?
9. What supplemental disclosures are likely to be required in connection with a statement of cash flows?
10. How might investors and creditors use a statement of cash flows?

## discussion cases

### CASE 13-1

### SHOULD WE MAKE THE LOAN?

Save More, Inc., a discount department store, has applied to its bankers for a loan. Although the company has been profitable, it is short of cash. The loan application includes the following information about current assets, current liabilities, net income, depreciation expense, and dividends for the past five years. (All numbers are rounded to the nearest thousand, with the 000s omitted.)

| | Dec. 31, 1998 | Dec. 31, 1999 | Dec. 31, 2000 | Dec. 31, 2001 | Dec. 31, 2002 |
|---|---|---|---|---|---|
| Cash and cash equivalents | $ 5 | $ 73 | $ 10 | $158 | $ (189) |
| Accounts receivable (net) | 403 | 555 | 516 | 576 | 654 |
| Inventory | 253 | 142 | 383 | 385 | 1,022 |
| Accounts payable | 19 | 17 | 281 | 253 | 52 |
| Net income | 454 | 492 | 467 | 440 | 481 |
| Depreciation expense | 50 | 50 | 55 | 60 | 60 |
| Dividends paid | 177 | 197 | 208 | 211 | 211 |

As a bank loan officer, you have been asked to review these figures in order to determine whether the bank should loan money to Save More, Inc.

1. Compute the net cash flows from operations for the last four years.
2. What caused the sudden decrease in cash flows from operations?
3. What factors would you focus on and what additional information would you need before deciding whether to make the loan?

### CASE 13-2

### ANALYZING THE CASH POSITION OF GOOD TIME, INC.

The following data show the account balances of Good Time, Inc., at the beginning and end of the company's fiscal year:

| Debits | Aug. 31, 2003 | Sept. 1, 2002 |
|---|---|---|
| Cash and cash equivalents | $ 88,200 | $ 29,000 |
| Accounts receivable (net) | 15,000 | 13,300 |
| Inventory | 10,500 | 12,700 |
| Prepaid insurance | 2,800 | 2,000 |
| Long-term investments (cost equals market) | 3,000 | 8,400 |
| Equipment | 40,000 | 33,000 |
| Treasury stock (at cost) | 5,000 | 10,000 |
| Cost of goods sold | 184,000 | |
| Operating expenses | 93,500 | |
| Income taxes | 18,800 | |
| Loss on sale of equipment | 500 | |
| Total debits | $461,300 | $108,400 |
| **Credits** | | |
| Accumulated depreciation—equipment | $ 9,500 | $ 9,000 |
| Accounts payable | 3,500 | 5,600 |
| Interest payable | 500 | 1,000 |
| Income taxes payable | 6,000 | 4,000 |
| Notes payable—long-term | 8,000 | 12,000 |
| Common stock | 55,000 | 50,000 |
| Paid-in capital in excess of par | 16,000 | 15,000 |
| Retained earnings | 9,800* | 11,800 |
| Sales | 352,000 | |
| Gain on sale of long-term investments | 1,000 | |
| Total credits | $461,300 | $108,400 |

*Preclosing balance

The following information concerning this year was also available:

a. All purchases and sales were on account.
b. Equipment with an original cost of $5,000 was sold for $1,500; a loss of $500 was recognized on the sale.
c. Among other items, the operating expenses included depreciation expense of $3,500; interest expense of $1,400; and insurance expense of $1,200.
d. Equipment was purchased by issuing common stock and paying the balance ($6,000) in cash.
e. Treasury stock was sold for $2,000 less than it cost; the decrease in stockholders' equity was recorded by reducing Retained Earnings.
f. No dividends were paid this year.

You are to examine Good Time's cash position by:

1. Preparing schedules showing the amount of cash collected from accounts receivable, cash paid for accounts payable, cash paid for interest, and cash paid for insurance.
2. Preparing a statement of cash flows for Good Time for the fiscal year 2003 using the direct method.
3. Identifying the major reasons why Good Time's cash and cash equivalents increased so dramatically during the year.
4. Comment on whether the dividend policy seems appropriate under the current circumstances.

## CASE 13-3 ANALYZING CASH FLOW PATTERNS

Paula Dalton is a security analyst for DJM, Inc. She claims that she can tell a great deal about companies by analyzing their cash flow patterns. Specifically, she looks at the negative or posi-

tive cash flow trends in the three categories on cash flow statements. Paula thinks this information is even more valuable than net income trend data from income statements. She illustrates her theory with the following patterns of cash flows for Abbott Company over the past three years.

| | 2003 | 2002 | 2001 |
|---|---|---|---|
| Net income | − | + | + |
| Cash flows from: | | | |
| Operating activities | − | − | + |
| Investing activities | + | + | + |
| Financing activities | + | + | + |

How do you think Paula would analyze these results? Do you agree that analyzing cash flow patterns provides superior analytical information?

## exercises

### EXERCISE 13-1 CLASSIFICATION OF CASH FLOWS

Indicate whether each of the following items would be associated with a cash inflow (I), cash outflow (O), or noncash item (N) and under which category each would be reported on a statement of cash flows: Operating Activities (OA); Investing Activities (IA); Financing Activities (FA); or not on the statement (NOS). An example is provided.

| Item | Classified as | Reported under |
|---|---|---|
| Example: Sales Revenue | I | OA |

1. Fees collected for services
2. Interest paid
3. Proceeds from sale of equipment
4. Cash (principal) received from bank on long-term note
5. Purchase of treasury stock for cash
6. Collection of loan made to company officer
7. Cash dividends paid
8. Taxes paid
9. Depreciation expense
10. Wages paid to employees
11. Cash paid for inventory purchases
12. Proceeds from sale of common stock
13. Interest received on loan to company officer
14. Purchase of land by issuing stock
15. Utility bill paid

### EXERCISE 13-2 CLASSIFICATION OF CASH FLOWS

The following items summarize certain transactions that occurred during the past year for Alta Inc. Show in which section of the statement of cash flows the information would be reported by placing an X in the appropriate column. (Assume the direct method is used to report operating cash flows.)

| Transaction | Reported In Statement of Cash Flows: Operating | Investing | Financing | Not Reported in Statement of Cash Flows |
|---|---|---|---|---|
| a. Collections from customers | | | | |
| b. Depreciation expense | | | | |
| c. Wages and salaries paid | | | | |
| d. Cash dividends paid | | | | |
| e. Taxes paid | | | | |
| f. Utilities paid | | | | |
| g. Building purchased in exchange for stock | | | | |
| h. Stock of Western Co. purchased | | | | |
| i. Inventory purchased for cash | | | | |
| j. Interest on Alta's note to local bank paid | | | | |
| k. Interest received from a note with a customer | | | | |
| l. Delivery truck sold at no gain or loss | | | | |

## EXERCISE 13-3 TRANSACTION ANALYSIS

Following are the transactions of Equine Company:

a. Sold equipment for $1,000. The original cost was $15,700; the book value is $1,700.
b. Purchased equipment costing $110,000 by paying cash of $20,000 and signing a $90,000 long-term note at 12% interest.
c. Received $5,000 of the principal and $450 in interest on a long-term note receivable.
d. Received $2,500 in cash dividends on stock held as a trading security. (Assume that the cost method is used.)
e. Purchased treasury stock for $3,000.

Complete the following:

1. Prepare journal entries for each of the transactions. (Omit explanations.)
2. For each transaction, indicate the amount of cash inflow or outflow. Then, note how each transaction would be classified on a statement of cash flows.

## EXERCISE 13-4 TRANSACTION ANALYSIS

The Vikon Company had the following selected transactions during the past year:

a. Sold (issued) 1,000 shares of common stock, $10 par, for $25 per share.
b. Collected $100,000 of accounts receivable.
c. Paid dividends to current stockholders in the amount of $50,000 (assume dividends declared earlier establishing a dividends payable account).
d. Received $1,500 interest on a note receivable from a company officer.
e. Paid the annual insurance premium of $1,200.
f. Recorded depreciation expense of $5,000.

1. Prepare appropriate journal entries for each of the above transactions. (Omit explanations.)
2. For each transaction, indicate the amount of cash inflow or outflow and also how each cash flow would be classified on a statement of cash flows.

## EXERCISE 13-5 PREPARING A SIMPLE CASH FLOW STATEMENT

Assume you have access to the ledger (specifically, the detail of the cash account) for New Company, represented by the following T-account:

| Cash | | | |
|---|---|---|---|
| Beg. Bal. | 11,500 | (2) | 75,000 |
| (1) | 150,000 | (3) | 60,000 |
| (4) | 6,000 | (5) | 5,500 |
| (6) | 30,000 | (7) | 25,000 |
| (8) | 12,000 | (9) | 15,000 |
| End. Bal. | 29,000 | | |

The transactions that are represented by posting entries (1) through (9) in the cash account are as follows:

1. Collections on account
2. Payments for wages and salaries
3. Payments for inventory
4. Proceeds from sale of equipment
5. Payments of dividends
6. Proceeds from new bank loan
7. Payments for other cash operating expenses
8. Proceeds from sale of nontrading securities
9. Payments for taxes

From these data, prepare a statement of cash flows for New Company for the year ended December 31, 2002.

## EXERCISE 13-6 DETERMINING CASH RECEIPTS AND PAYMENTS

Assuming the following data, compute:

1. Cash collected from customers.
2. Cash paid for wages and salaries.
3. Cash paid for inventory purchases.
4. Cash paid for taxes.

| | Income Statement Amount for Year | Balance Sheet | |
|---|---|---|---|
| | | Beg. of Year | End of Year |
| Sales revenue | $225,000 | | |
| Accounts receivable (net) | | $20,000 | $22,000 |
| Wages and salaries expense | 55,000 | | |
| Wages and salaries payable | | 14,000 | 11,000 |
| Cost of goods sold | 105,000 | | |
| Accounts payable | | 24,500 | 26,000 |
| Inventory | | 34,000 | 28,000 |
| Income tax expense | 35,000 | | |
| Income taxes payable | | 15,500 | 18,000 |

## EXERCISE 13-7 ADJUSTMENTS TO CASH FLOWS FROM OPERATIONS (INDIRECT METHOD)

Assume that you are using the indirect method of preparing a statement of cash flows. For each of the changes listed, indicate whether it would be added to or subtracted from net income in computing net cash flows provided by (used in) operating activities. If the change does not affect net cash flows provided by (used in) operating activities, so indicate.

1. Increase in Accounts Receivable (net)
2. Decrease in Accounts Payable
3. Increase in securities classified as cash equivalents

4. Gain on sale of equipment
5. Decrease in Inventory
6. Increase in Prepaid Insurance
7. Depreciation
8. Increase in Wages Payable
9. Decrease in Dividends Payable
10. Decrease in Interest Receivable

## EXERCISE 13-8

### CASH FLOWS FROM OPERATIONS (DIRECT METHOD)

Jane Ortiz is the proprietor of a small company. The results of operations for last year are shown, along with selected balance sheet data. From the information provided, determine the amount of net cash flows provided from operations, using the direct method.

| | | |
|---|---|---|
| Sales revenue | $200,000 | |
| Cost of goods sold | 140,000 | |
| Gross margin | | $60,000 |
| Operating expenses: | | |
| Wages expense | $ 25,000 | |
| Utilities expense | 1,800 | |
| Rent expense | 12,000 | |
| Insurance expense | 3,000 | 41,800 |
| Net income | | $18,200 |

| | Beginning of Year | End of Year |
|---|---|---|
| Accounts receivable (net) | $22,000 | $25,000 |
| Inventory | 35,000 | 30,000 |
| Prepaid insurance | 3,000 | 2,500 |
| Accounts payable | 14,000 | 17,000 |
| Wages payable | 4,000 | 2,000 |

## EXERCISE 13-9

### CASH FLOWS FROM OPERATIONS (INDIRECT METHOD)

Given the data in Exercise 13-8, show how the amount of net cash flows from operating activities would be calculated using the indirect method.

## EXERCISE 13-10

### CASH FLOWS PROVIDED BY OPERATIONS (DIRECT METHOD)

The following information was taken from the comparative financial statements of Imperial Corporation for the years ended December 31, 2002 and 2003:

| | |
|---|---|
| Net income for 2003 | $ 90,000 |
| Sales revenue | 500,000 |
| Cost of goods sold | 300,000 |
| Depreciation expense for 2003 | 60,000 |
| Amortization of goodwill for 2003 | 10,000 |
| Interest expense on short-term debt for 2003 | 3,500 |
| Dividends declared and paid in 2003 | 65,000 |

| | Dec. 31, 2003 | Dec. 31, 2002 |
|---|---|---|
| Accounts receivable (net) | $30,000 | $43,000 |
| Inventory | 50,000 | 42,000 |
| Accounts payable | 56,000 | 59,400 |

Use the direct method to compute cash flows provided by operating activities in 2003. (HINT: You need to calculate cash paid for operating expenses.)

## EXERCISE 13-11

### CASH FLOWS PROVIDED BY OPERATIONS (INDIRECT METHOD)

Given the data in Exercise 13-10, show how the amount of cash provided by operations for 2003 is computed using the indirect method.

## EXERCISE 13-12

### CASH FLOWS PROVIDED BY OPERATIONS (DIRECT METHOD)

The following information was taken from the comparative financial statements of Altec Industries, Inc., for the years ended December 31, 2002 and 2003:

| | |
|---|---|
| Net income for 2003 | $175,000 |
| Sales revenue | 750,000 |
| Cost of goods sold | 425,000 |
| Depreciation expense for 2003 | 45,000 |
| Amortization of goodwill for 2003 | 5,000 |
| Interest expense on short-term debt for 2003 | 8,000 |
| Dividends declared and paid in 2003 | 30,000 |
| Utilities expense | 3,000 |

| | Dec. 31, 2003 | Dec. 31, 2002 |
|---|---|---|
| Accounts receivable (net) | $45,000 | $57,000 |
| Inventory | 62,500 | 50,000 |
| Accounts payable | 70,000 | 51,500 |

Use the direct method to compute cash flows provided by operating activities in 2003. (HINT: You need to calculate cash paid for operating expenses.)

## EXERCISE 13-13

### CASH FLOWS PROVIDED BY OPERATIONS (INDIRECT METHOD)

Given the data in Exercise 13-12, show how the amount of cash flows provided by operations for 2003 is computed using the indirect method.

## EXERCISE 13-14

### NET CASH FLOWS (INDIRECT METHOD)

Given the following selected data for Milton Corporation, using the indirect method to report cash flows from operating activities, determine the net increase (decrease) in cash for the year ended December 31, 2003.

| | |
|---|---|
| Net income | $ 95,000 |
| Depreciation | 25,000 |
| Other operating expenses | 140,000 |
| Cost of goods sold | 240,000 |
| Sales revenue | 500,000 |
| Increase in accounts receivable (net) | 10,000 |
| Decrease in accounts payable | 5,000 |
| Decrease in inventory | 3,000 |
| Increase in prepaid assets | 7,000 |
| Increase in wages payable | 15,000 |
| Equipment purchased for cash | 40,000 |
| Increase in bonds payable | 100,000 |
| Dividends declared and paid | 40,000 |
| Decrease in dividends payable | 2,000 |

## EXERCISE 13-15 NET CASH FLOWS (DIRECT METHOD)

Based on the following information, determine the net increase (decrease) in cash for Porter Corporation for the year ended December 31, 2003. Use the direct method to report cash flows from operating activities.

| | |
|---|---|
| Cash received from interest revenue | $ 14,000 |
| Cash paid for dividends | 45,000 |
| Cash collected from customers | 349,000 |
| Cash paid for wages | 254,000 |
| Depreciation expense for the period | 25,000 |
| Cash received from issuance of common stock | 200,000 |
| Cash paid for retirement of bonds at par | 100,000 |
| Cash received on sale of equipment at book value | 5,000 |
| Cash paid for land | 85,000 |

## EXERCISE 13-16 STATEMENT OF CASH FLOWS (INDIRECT METHOD)

North Western Company provides the following financial information. Prepare a statement of cash flows for 2003, using the indirect method to report cash flows from operating activities.

**North Western Company**
**Comparative Balance Sheets**
**For the Years Ended December 31, 2003 and 2002**

| | 2003 | 2002 |
|---|---|---|
| **Assets** | | |
| Cash and cash equivalents | $ 4,500 | $ 9,000 |
| Accounts receivable (net) | 33,000 | 36,000 |
| Inventory | 75,000 | 60,000 |
| Plant and equipment (net) | 262,500 | 225,000 |
| Total assets | $375,000 | $330,000 |
| **Liabilities and Stockholders' Equity** | | |
| Accounts payable | $ 60,000 | $ 54,000 |
| Capital stock | 225,000 | 217,500 |
| Retained earnings | 90,000 | 58,500 |
| Total liabilities and stockholders' equity | $375,000 | $330,000 |

**North Western Company**
**Income Statement**
**For the Year Ended December 31, 2003**

| | |
|---|---|
| Sales | $412,500 |
| Cost of goods sold | 225,000 |
| Gross margin | $187,500 |
| Operating expenses | 135,000 |
| Net income | $ 52,500 |

*Note:* Dividends of $21,000 were declared and paid during 2003. Depreciation expense for the year was $22,500.

## EXERCISE 13-17 STATEMENT OF CASH FLOWS (DIRECT METHOD)

By analyzing the information in Exercise 13-16, prepare a statement of cash flows. Use the direct method to report cash flows from operating activities.

## EXERCISE 13-18 CASH FLOW PATTERNS

Below are recent financial statement data for the following companies:

- AMAZON.COM
- COCA-COLA
- EXXONMOBIL
- MICROSOFT

Use the financial statement data to match each company with its numbers. All numbers are in millions.

| | Net Income | Cash Flow from Operating Activities | Cash Flow from Investing Activities | Cash Flow from Financing Activities |
|---|---|---|---|---|
| 1 | $ (720) | $ (91) | $ (922) | $ 1,104 |
| 2 | 7,910 | 15,013 | (10,985) | (4,779) |
| 3 | 7,785 | 10,030 | (11,191) | 2,245 |
| 4 | 2,431 | 3,883 | (3,421) | (471) |

Consider the following information as you match the companies:

1. Start-ups have high positive financing cash flows relative to investing cash flows.
2. Companies with lots of property, plant, and equipment have cash from operations that is greater than net income because of lots of depreciation expense.
3. Old cash cows are spending money on investing but still have plenty left over for a net cash outflow from financing activities.

## EXERCISE 13-19 ANALYZING CASH FLOWS

Study the comparative cash flow statements for **MICROSOFT** in Appendix A. What observations do you have about Microsoft's cash flow position? From a liquidity standpoint, is the trend over the last few years positive or negative? Explain.

# problems

## PROBLEM 13-1 TRANSACTION ANALYSIS

Development Corporation reports the following summary data for the current year:

a. Sales revenue totaled $251,500.
b. Interest revenue for the period was $2,200.
c. Interest expense for the period was $800.
d. Cost of goods sold for the period was $156,000.
e. Operating expenses, all paid in cash (except for depreciation of $15,000), were $48,000.
f. Income tax expense for the period was $8,000.
g. Accounts receivable (net) increased by $10,000 during the period.
h. Accounts payable decreased by $5,000 during the period.
i. Inventory at the beginning and end of the period was $25,000 and $35,000, respectively.
j. Cash increased during the period by $5,000.

Assume all other current asset and current liability accounts remained constant during the period.

*Required:*

1. Compute the amount of cash collected from customers.
2. Compute the amount of cash paid for inventory.
3. Compute the amount of cash paid for operating expenses.
4. Compute the amount of cash flows provided by (used in) operations.
5. **Interpretive Question:** What must have been the combined amount of cash flows provided by (used in) investing and financing activities?

## PROBLEM 13-2 ANALYSIS OF THE CASH ACCOUNT

The following information, in T-account format, is provided for the M & M Company for the year 2003:

**Cash Account**

| | | | |
|---|---|---|---|
| Beg. Bal. | 15,400 | (b) | 56,500 |
| (a) | 147,000 | (c) | 23,000 |
| (d) | 3,500 | (f) | 59,700 |
| (e) | 15,000 | (g) | 1,600 |
| | | (h) | 2,400 |
| End. Bal. | 37,700 | | |

Additional information:

a. Sales revenue for the period was $145,000. Accounts receivable (net) decreased $2,000 during the period.
b. Net purchases of $58,000 were made during 2003, all on account. Accounts payable increased $1,500 during the period.
c. The equipment account increased by $18,000 during the year.
d. One piece of equipment that cost $5,000, with a net book value of $3,000, was sold for a $500 gain.
e. The company borrowed $15,000 from its bank during the year.
f. Various operating expenses were all paid in cash, except for depreciation of $1,800. Total operating expenses were $61,500.
g. Interest expense for the year was $1,200. The interest payable account decreased by $400 during the year.
h. Income tax expense for the year was $3,600. The income taxes payable account increased by $1,200 during the year.

*Required:*

1. From the information given, reconstruct the journal entries that must have been made during the year (omit explanations).
2. Prepare a statement of cash flows for M & M Company for the year ended December 31, 2003.

## PROBLEM 13-3 ANALYZING CASH FLOWS

The following information was provided by the treasurer of Surety, Inc., for the year 2003:

a. Cash sales for the year were $50,000; sales on account totaled $60,000.
b. Cost of goods sold was 50% of total sales.
c. All inventory is purchased on account.
d. Depreciation on equipment was $31,000 for the year.
e. Amortization of goodwill was $2,000.
f. Collections of accounts receivable were $38,000.
g. Payments on accounts payable for inventory equaled $39,000.
h. Rent expense paid in cash was $11,000.
i. The company issued 20,000 shares of $10-par stock for $240,000.
j. Land valued at $106,000 was acquired by issuance of a bond with a par value of $100,000.
k. Equipment was purchased for cash at a cost of $84,000.

l. Dividends of $46,000 were declared but not yet paid.
m. The company paid $15,000 of dividends that had been declared the previous year.
n. A machine used on the assembly line was sold for $12,000. The machine had a book value of $7,000.
o. Another machine with a book value of $500 was scrapped and was reported as an ordinary loss. No cash was received on this transaction.
p. The cash account increased $191,000 during the year to a total of $274,000.

*Required:*

1. Compute the beginning balance in the cash account.
2. How much cash was provided by (or used in) operating activities?
3. How much cash was provided by (or used in) investing activities?
4. How much cash was provided by (or used in) financing activities?
5. Would all the above items, (a) through (p), be reported on a cash flow statement? Explain.

## PROBLEM 13-4

### CASH FLOWS FROM OPERATIONS (INDIRECT METHOD)

Gardner Enterprises reported a net loss of $40,000 for the year just ended. Relevant data for the company follow.

| | Beginning of Year | End of Year |
|---|---|---|
| Cash and cash equivalents | $ 50,000 | $ 20,000 |
| Accounts receivable (net) | 80,000 | 65,000 |
| Inventory | 123,000 | 130,000 |
| Prepaid expenses | 7,500 | 4,500 |
| Accounts payable | 55,000 | 60,000 |
| Accrued liabilities | 10,000 | 4,000 |
| Dividends payable | 25,000 | 35,000 |

Depreciation for the year, $43,000
Dividends declared, $35,000

*Required:*

1. Using the indirect method, determine the net cash flows provided by (used in) operating activities for Gardner Enterprises.
2. **Interpretive Question:** Explain how Gardner Enterprises can pay cash dividends during a year when it reports a net loss.

## PROBLEM 13-5

### CASH FLOWS FROM OPERATIONS (DIRECT METHOD)

Super Sales, Inc., shows the following information in its accounting records at year-end:

| | |
|---|---|
| Sales revenue | $890,000 |
| Interest revenue | 12,000 |
| Cost of goods sold | 425,000 |
| Wages expense | 225,000 |
| Depreciation expense | 50,000 |
| Other (cash) operating expenses | 84,000 |
| Dividends declared | 40,000 |

Selected balance sheet data are as follows:

| | Beginning of Year | End of Year |
|---|---|---|
| Accounts receivable (net) | $ 55,000 | $ 78,000 |
| Interest receivable | 10,000 | 12,000 |
| Inventory | 225,000 | 220,000 |
| Accounts payable | 42,000 | 35,000 |
| Wages payable | 20,000 | 25,000 |
| Dividends payable | 35,000 | 40,000 |

*Required:*

1. Using the direct method, compute the net cash flows provided by (used in) operating activities for Super Sales, Inc.
2. **Interpretive Question:** Explain the main differences between the net amount of cash flows from operations and net income (loss).

## PROBLEM 13-6 CASH FLOWS FROM OPERATIONS (INDIRECT AND DIRECT METHODS)

The following combined income and retained earnings statement, along with selected balance sheet data, are provided for Roper Company:

**Roper Company**
**Combined Income and Retained Earnings Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Net sales revenue | | $85,000 |
| Other revenues | | 4,500* |
| Total revenues | | $89,500 |
| Expenses: | | |
| Cost of goods sold | $51,000 | |
| Selling and administrative expenses | 14,700 | |
| Depreciation expense | 3,200 | |
| Interest expense | 1,400 | |
| Total expenses | | 70,300 |
| Income before taxes | | $19,200 |
| Income taxes | | 5,760 |
| Net income | | $13,440 |
| Retained earnings, January 1, 2003 | | 33,500 |
| | | $46,940 |
| Dividends declared and paid | | 2,500 |
| Retained earnings, December 31, 2003 | | $44,440 |

*Gain on sale of equipment (cost, $9,500; book value, $6,000; sales price $10,500).

| | Beginning of Year | End of Year |
|---|---|---|
| Accounts receivable (net) | $10,500 | $11,000 |
| Inventory | 19,300 | 18,000 |
| Prepaid expenses | 950 | 700 |
| Accounts payable | 7,200 | 8,000 |
| Interest payable | 1,500 | 1,000 |
| Income taxes payable | 500 | 2,500 |

*Required:*

1. Using the indirect method, compute the net cash flows from operations for Roper Company for 2003.
2. Using the direct method, compute the net cash flows from operations for Roper Company for 2003.
3. What is the impact of dividends paid on net cash flows from operations? Explain.

## PROBLEM 13-7 COMPUTATION OF NET INCOME FROM CASH FLOWS FROM OPERATIONS (DIRECT METHOD)

The following partially completed work sheet is provided for ATM Corporation, which uses the direct method in computing net cash flows from operations:

**ATM Corporation**
**Partial Work Sheet—Cash Flows from Operations**
**(Direct Method)**
**For the Year Ended December 31, 2003**

| | Accrual Basis | Adjustments | | Cash Basis |
|---|---|---|---|---|
| | | Debits | Credits | |
| Net sales revenue | | | | $150,000 |
| Expenses: | | | | |
| Cost of goods sold | | | | $ 75,000 |
| Depreciation | | | | 0 |
| Loss on sale of equipment | | | | 0 |
| Other (cash) expenses | | | | 26,000 |
| Total expenses | | | | $101,000 |
| Net income (net cash flows from operations) | | | | $ 49,000 |

*Key:*

1. Decrease in Accounts Receivable (net), $4,500.
2. Loss on sale of equipment, $1,500.
3. Increase in Inventory, $10,000.
4. Increase in Accounts Payable, $3,000.
5. Depreciation for the year, $8,000.
6. Decrease in Prepaid Expenses, $1,000.
7. Increase in Accrued Liabilities, $2,500.

*Required:* Complete the work sheet with the key items above and compute the net income (loss) to be reported by ATM Corporation on its income statement for 2003.

## PROBLEM 13-8 INCOME STATEMENT FROM CASH FLOW DATA

Jackson Corporation computed the amount of cash flows from operations using both the direct and indirect methods, as follows:

| | |
|---|---|
| Direct method: | |
| Collections from customers | $445,000 |
| Payments to suppliers | (130,000) |
| Payments for operating expenses | (210,000) |
| Cash flows provided by operating activities | $105,000 |
| Indirect method: | |
| Net income | $ 95,000 |
| Depreciation | 20,000 |
| Gain on sale of equipment | (7,500) |
| Decrease in inventory | 1,000 |
| Decrease in accounts receivable (net) | 1,500 |
| Decrease in accounts payable | (7,500) |
| Increase in miscellaneous accrued payable | 2,500 |
| Cash flows provided by operating activities | $105,000 |

*Required:* Using the data provided, prepare an income statement for Jackson Corporation for the year 2003.

## PROBLEM 13-9 STATEMENT OF CASH FLOWS (INDIRECT METHOD)

JEM Company's comparative balance sheets for 2002 and 2003 are provided.

**JEM Company**
**Comparative Balance Sheets**
**December 31, 2003 and 2002**

| | 2003 | 2002 |
|---|---|---|
| **Assets** | | |
| Cash and cash equivalents | $ 30,500 | $ 10,000 |
| Accounts receivable (net) | 64,500 | 51,000 |
| Inventory | 100,000 | 115,000 |
| Equipment | 55,000 | 30,000 |
| Accumulated depreciation—equipment | (21,500) | (14,000) |
| Total assets | $228,500 | $192,000 |
| **Liabilities and Stockholders' Equity** | | |
| Accounts payable | $ 52,500 | $ 46,000 |
| Long-term notes payable | 70,000 | 50,000 |
| Capital stock | 60,000 | 60,000 |
| Retained earnings | 46,000 | 36,000 |
| Total liabilities and stockholders' equity | $228,500 | $192,000 |

The following additional information is available:

a. Net income for the year 2003 (as reported on the income statement) was $50,000.
b. Dividends of $40,000 were declared and paid.
c. Equipment that cost $8,000 and had a book value of $1,000 was sold during the year for $2,500.

*Required:* Based on the information provided, prepare a statement of cash flows for JEM Company for the year ended December 31, 2003. Use the indirect method to report cash flows from operating activities.

## PROBLEM 13-10

### STATEMENT OF CASH FLOWS (DIRECT METHOD)

Financial statement data for Continental Stores, Inc., are provided. (All numbers are shown rounded to the nearest thousand, with 000's omitted.)

**Continental Stores, Inc.**
**Income and Retained Earnings Statements**
**For the Year Ended December 31, 2003**

| | |
|---|---|
| Sales revenue | $1,290 |
| Cost of goods sold | 978 |
| Gross margin | $ 312 |
| Operating expenses: | |
| Sales and administrative expenses | $ 105 |
| Depreciation expense | 14 |
| Other expenses | 87 |
| Total operating expenses | $ 206 |
| Income before taxes | $ 106 |
| Income taxes | 51 |
| Net income | $ 55 |
| Dividends paid | 10 |
| Increase in retained earnings | $ 45 |

**Continental Stores, Inc.**
**Comparative Balance Sheets**
**December 31, 2003 and 2002**

| | 2003 | 2002 |
|---|---|---|
| **Assets** | | |
| Cash and cash equivalents | $ 752 | $ 725 |
| Accounts receivable (net) | 461 | 448 |
| Inventory | 226 | 953 |
| Land | 1,340 | 1,240 |
| Store fixtures | 369 | 369 |
| Accumulated depreciation, store fixtures | (51) | (37) |
| Total assets | $3,097 | $3,698 |
| **Liabilities and Stockholders' Equity** | | |
| *Liabilities:* | | |
| Accounts payable | $ 175 | $ 378 |
| Short-term notes payable | 525 | 768 |
| Long-term debt | 804 | 1,004 |
| Total liabilities | $1,504 | $2,150 |
| *Stockholders' equity:* | | |
| Common stock | $ 448 | $ 448 |
| Paid-in capital in excess of par | 500 | 500 |
| Retained earnings | 645 | 600 |
| Total stockholders' equity | $1,593 | $1,548 |
| Total liabilities and stockholders' equity | $3,097 | $3,698 |

*Required:*

1. Compute the net cash flows from operations using the direct method.
2. **Interpretive Question:** Comment on the difference between net income and net cash flows from operations.
3. Prepare a statement of cash flows for Continental Stores, Inc., for the year ended December 31, 2003.

## PROBLEM 13-11 STATEMENT OF CASH FLOWS (INDIRECT METHOD)

1. Using the data from Problem 13-10, prepare a statement of cash flows. Use the indirect method to report cash flows from operating activities.
2. **Interpretive Question:** What are the main differences between a statement of cash flows prepared using the indirect method and one prepared using the direct method?

## PROBLEM 13-12 UNIFYING CONCEPTS: ANALYSIS OF OPERATING, INVESTING, AND FINANCING ACTIVITIES

Grant Kesler is the manager and one of three brothers who own the Rocky Mountain Auto Parts Company in Denver, Colorado. Grant is pleased that sales were up last year and that his new, small company has been able to expand and open a second store in Denver. After reviewing the balance sheet, however, Grant is concerned that Cash shows a negative balance. He can't understand how his company can show net income, based on increased sales, yet have a negative Cash position. He is concerned about what his banker is going to say when they meet next month to discuss a loan for the company to expand to a third store. Grant provides the following financial information and asks for your help.

**Rocky Mountain Auto Parts Company**
**Income Statement**
**For the Year Ended December 31, 2003**

| | | |
|---|---|---|
| Sales | | $150,000 |
| Less cost of goods sold | | 63,000 |
| Gross margin | | $ 87,000 |
| Operating expenses: | | |
| Salary and wages | $32,000 | |
| Depreciation | 4,500 | |
| Other operating expenses | 12,400 | 48,900 |
| Operating income | | $ 38,100 |
| Income taxes | | 8,200 |
| Net income | | $ 29,900 |

**Rocky Mountain Auto Parts Company**
**Comparative Balance Sheets**
**As of December 31, 2003 and 2002**

| | 2003 | 2002 |
|---|---|---|
| **Assets** | | |
| *Current assets:* | | |
| Cash | $ (3,200) | $ 6,400 |
| Accounts receivable (net) | 3,100 | 2,700 |
| Inventory | 63,000 | 42,000 |
| Total current assets | $ 62,900 | $51,100 |
| *Other assets:* | | |
| Property, plant, and equipment | $ 82,300 | $39,000 |
| Less accumulated depreciation | (20,100) | (15,600) |
| Total other assets | $ 62,200 | $23,400 |
| Total assets | $125,100 | $74,500 |
| **Liabilities and Stockholders' Equity** | | |
| *Current liabilities:* | | |
| Accounts payable | $ 6,400 | $ 5,700 |
| Wages payable | 1,500 | 1,300 |
| Taxes payable | 1,900 | 2,100 |
| Total current liabilities | $ 9,800 | $ 9,100 |
| *Other liabilities:* | | |
| Notes payable | 30,000 | 10,000 |
| Total liabilities | $ 39,800 | $19,100 |
| *Stockholders' equity:* | | |
| Capital stock | $ 40,000 | $40,000 |
| Retained earnings | 45,300 | 15,400 |
| Total stockholders' equity | $ 85,300 | $55,400 |
| Total liabilities and stockholders' equity | $125,100 | $74,500 |

*Required:*

1. Using the direct method, compute the net cash flows from operations. Also determine net cash flows for investing and financing activities.
2. **Interpretive Question:** Is Rocky Mountain Auto Parts Company in a good liquidity position? As Mr. Kesler's banker, would you loan him more money to fund the company's expansion?

## competency enhancement opportunities

- Analyzing Real Company Information
- International Case
- Ethics Case
- Writing Assignment
- The Debate
- Cumulative Spreadsheet Project
- Internet Search

*The following additional assignments provide opportunities for students to develop critical thinking, ethical perspectives, oral and written communication skills, experience with electronic research, and teamwork through group and business activities.*

### ANALYZING REAL COMPANY INFORMATION

***• Analyzing 13-1 (Microsoft)***

The 1999 annual report for **MICROSOFT** appears in Appendix A. Locate that annual report and consider the following questions:

1. Does Microsoft present the three cash flow statement categories—operating, investing, and financing—in the same order as that illustrated in the chapter?
2. In 1999, Microsoft spent $11.191 billion on various investing activities. Were the cash flows from operations sufficient to pay for these investments?
3. In its 1999 operating activities section, Microsoft reports both $5.877 billion and $4.526 billion in relation to unearned revenue. Exactly what does each of these numbers represent? Compare these numbers to the corresponding numbers in 1997 and comment on the reason for such a big difference.
4. Did Microsoft pay any cash dividends to common stockholders during 1999? Did Microsoft make any payments to common stockholders during the year?

***• Analyzing 13-2 (The Coca-Cola Company)***

The 1999 statement of cash flows for **THE COCA-COLA COMPANY** is given on page 665. Use the statement to answer the following questions:

1. Compute Coca-Cola's "Net cash provided by operations after reinvestment." This amount is computed by subtracting "Net cash used in investing activities" from "Net cash provided by operating activities." Interpret the results of the calculation for Coca-Cola for the period 1997–1999.
2. In its operating activities section, Coca-Cola subtracts gains on sales of assets in computing net cash provided by operating activities. Why are these gains subtracted?
3. Think of the dealings that The Coca-Cola Company has with its shareholders. The shareholders give money to the company by purchasing new shares of stock. In turn, the company returns cash to shareholders by paying cash dividends and by repurchasing shares of stock. For the three-year period 1997–1999, did The Coca-Cola Company receive more cash from its shareholders than it paid back to them, or did it pay more cash to its shareholders than it received? Show your calculations.
4. Look carefully at the statement of cash flows. Did the U.S. dollar get stronger or weaker during the three-year period 1997–1999?

**The Coca-Cola Company and Subsidiaries**
**Consolidated Statements of Cash Flows**
**For the Years Ended December 31, 1997, 1998, 1999**
**(in millions)**

| Year Ended December 31, | 1999 | 1998 | 1997 |
|---|---|---|---|
| *Operating activities:* | | | |
| Net income | $ 2,431 | $ 3,533 | $ 4,129 |
| Depreciation and amortization | 792 | 645 | 626 |
| Deferred income taxes | 97 | (38) | 380 |
| Equity income, net of dividends | 292 | 31 | (108) |
| Foreign currency adjustments | (41) | 21 | 37 |
| Gains on issuances of stock by equity investees | — | (27) | (363) |
| Gains on sales of assets, including bottling interests | (49) | (306) | (639) |
| Other operating charges | 799 | 73 | 60 |
| Other items | 119 | 51 | (42) |
| Net change in operating assets and liabilities | (557) | (550) | (47) |
| Net cash provided by operating activities | $ 3,883 | $ 3,433 | $ 4,033 |
| *Investing activities:* | | | |
| Acquisitions and investments, principally trademarks and bottling companies | $(1,876) | $(1,428) | $(1,100) |
| Purchases of investments and other assets | (518) | (610) | (459) |
| Proceeds from disposals of investments and other assets | 176 | 1,036 | 1,999 |
| Purchases of property, plant and equipment | (1,069) | (863) | (1,093) |
| Proceeds from disposals of property, plant and equipment | 45 | 54 | 71 |
| Other investing activities | (179) | (350) | 82 |
| Net cash used in investing activities | $(3,421) | $(2,161) | $ (500) |
| *Financing activities:* | | | |
| Issuances of debt | $ 3,411 | $ 1,818 | $ 155 |
| Payments of debt | (2,455) | (410) | (751) |
| Issuances of stock | 168 | 302 | 150 |
| Purchases of stock for treasury | (15) | (1,563) | (1,262) |
| Dividends | (1,580) | (1,480) | (1,387) |
| Net cash used in financing activities | $ (471) | $(1,333) | $(3,095) |
| Effect of exchange rate changes on cash and cash equivalents | $ (28) | $ (28) | $ (134) |
| Cash and cash equivalents: | | | |
| Net increase (decrease) during the year | (37) | (89) | 304 |
| Balance at beginning of the year | 1,648 | 1,737 | 1,433 |
| Balance at end of year | $ 1,611 | $ 1,648 | $ 1,737 |

## INTERNATIONAL CASE

***• Glaxo Wellcome***

**GLAXO WELLCOME**, a British company, is one of the largest pharmaceutical firms in the world. The name "Glaxo" comes from the company's first major product line, baby food products that were sold with the slogan, "Builds Bonnie Babies." Growth of the company in recent years has been driven by sales of Zantac, an anti-ulcer drug.

Glaxo Wellcome's 1999 statement of cash flows is shown on the next page. Look at the statement and answer the following questions. (Note: Translations of British accounting terms into American English are shown in square brackets.)

1. In a U.S. statement of cash flows, cash flows are sorted into three categories. How many categories does Glaxo Wellcome use?
2. List some of the items that Glaxo Wellcome has excluded from the computation of cash from operating activities that would be included if the statement of cash flows were prepared according to U.S. standards.
3. Given your answer in (2), which is a better indication of cash from operating activities: the number reported by Glaxo Wellcome using a British classification of cash flows, or the number that would be reported using a U.S. classification? Explain your answer.
4. If you were to redo Glaxo Wellcome's statement of cash flows for 1999 using the U.S. classification scheme with just three categories, the total of these three categories would result in the same net change in cash (36) reported by Glaxo Wellcome using the British classification. Why is this?

**Glaxo Wellcome plc**
**Consolidated Statement of Cash Flows**
**31st December 1999**
**(in millions of £)**

| | 1999 | 1998 |
|---|---|---|
| Trading profit | 2,625 | 2,683 |
| Depreciation | 360 | 358 |
| Impairment | 68 | — |
| Amortization of goodwill | 9 | 6 |
| Loss/(profit) on sale of tangible fixed assets | 7 | 7 |
| Profit on sale of equity investments | (139) | (38) |
| Increase in stocks [inventory] | (391) | (297) |
| Decrease/(increase) in debtors [accounts receivable] | (126) | (250) |
| (Decrease)/increase in creditors [accounts payable] | 64 | 30 |
| (Decrease)/increase in pension and other provisions | 166 | (41) |
| Other | (37) | (110) |
| Net cash inflow from operating activities | **2,606** | **2,348** |
| Earnings from joint ventures and associated undertakings | **2** | **40** |
| Returns on investment and servicing of finance | | |
| Interest received | 110 | 112 |
| Interest paid | (198) | (200) |
| Cost of financing | (2) | — |
| Dividends paid to minority shareholders | (31) | (9) |
| | **(121)** | **(97)** |
| Taxation paid | | |
| Corporate taxation | **(672)** | **(626)** |
| Capital expenditure less disposals | | |
| Purchase of tangible fixed assets | (597) | (475) |
| Sale of tangible fixed assets | 82 | 55 |
| | **(515)** | **(420)** |
| Acquisitions and disposals | | |
| Purchase of businesses | (67) | (156) |
| Investment in joint ventures and associated undertakings | (3) | (16) |
| Dissolution of joint ventures | — | 20 |
| Disposal of interest in associate | 41 | — |
| Purchase of own shares | (421) | (10) |
| Purchase of equity investments | (7) | (51) |
| Sale of equity investments | 118 | 54 |
| | **(339)** | **(159)** |
| Equity dividends paid | **(1,305)** | **(1,255)** |
| Net cash inflows before financing | **(344)** | **(169)** |
| Financing | | |
| Management of liquid resources | (42) | (251) |
| Issue of ordinary share capital | 104 | 284 |
| Increase in long-term loans | 110 | 5 |
| Repayment of long-term loans | (9) | (63) |
| Net repayment of short-term loans | 150 | 117 |
| New obligations under finance [capital] leases | (5) | (4) |
| Net cash inflow from financing activities | **308** | **88** |
| (Decrease)/increase in cash in the year | **(36)** | **(81)** |

## ETHICS CASE

***• Manipulating the Federal Budget Deficit***

Assume that you are the paymaster in charge of all U.S. Department of Defense (DOD) payroll matters. The total amount that you disburse in payroll checks in any given week is in excess of $1 billion.

Assume also that tax receipts have been lower than expected and that a federal budget deficit, and not a surplus, is now projected. Currently, Congress is struggling to reduce the projected budget deficit. It is an election year, and the members of Congress are worried that they will be stuck with a "tax and spend" label if the government runs a deficit this year. Of course, the DOD budget has been scrutinized very carefully to reduce reported expenditures as much as possible.

Yesterday, a congressional leader came to your office with a disturbing proposal. Because the federal budget numbers are reported on a cash basis, rather than on an accrual basis, expenses are reported when they are paid instead of when they are incurred. This year, the final DOD payday of the year happens to fall on the last day of the federal government's fiscal year (September 30). The congressional leader suggested that you delay issuing the payroll checks by one day. This would push the actual payment of the cash into the next fiscal year. Thus, even though the payment would be for services performed in the current fiscal year, the expense wouldn't be reported until next year. With this simple trick, the reported deficit for this year (an election year) can be reduced by $1 billion.

What should you do?

## WRITING ASSIGNMENT

***• Convincing the Old-Timers of the Need for Cash Flow Data***

You are the chief accountant for Harry Monst Company. The president of the company is a former accountant who worked her way up through the management ranks over the course of 30 years. She is a great manager, but her knowledge of accounting is outdated.

Harry Monst Company has a revolving line of credit with Texas Commercial Bank. A new loan officer has just been put in charge of the Harry Monst account. The new loan officer is surprised to see that Harry Monst has not been submitting a statement of cash flows along with the rest of the financial statements that comprise the annual loan review packet. The new loan officer called you and asked for a statement of cash flows.

You were surprised when you took the completed statement of cash flows to the president for her signature. She refused to sign, stating that she had never looked at or prepared a statement of cash flows in her career and she wouldn't start now.

Write a one-page memo to the president with the objective of convincing her of the usefulness of the statement of cash flows.

## THE DEBATE

***• No One Can Understand the Indirect Method!***

Companies have the option of reporting cash flows from operating activities using either the direct or the indirect method. Many financial statement users think that the information provided with the direct method is easier to understand. In spite of this, more than 95% of large U.S. companies use the indirect method.

Divide your group into two teams.

- One team represents the "Direct Method." Prepare a two-minute oral presentation arguing that the direct method is just what its name implies—direct and easy to understand. The indirect method is merely an attempt by accountants to confuse financial statement users.
- The other team represents the "Indirect Method." Prepare a two-minute oral presentation arguing that the direct method may seem easy to understand, but only to unsophisticated financial statement readers. The indirect method reveals much more useful information.

## CUMULATIVE SPREADSHEET PROJECT

This spreadsheet assignment is a continuation of the spreadsheet assignments given in earlier chapters. If you completed those spreadsheets, you have a head start on this one.

1. Handyman wishes to prepare a forecasted balance sheet, income statement, and statement of cash flows for 2004. Use the original financial statement numbers for 2003 [given in part (1) of the Cumulative Spreadsheet Project assignment in Chapter 2] as the basis for the forecast along with the following additional information:
   a. Sales in 2004 are expected to increase by 40% over 2003 sales of $700.
   b. In 2004, Handyman expects to acquire new property, plant, and equipment costing $80.
   c. The $160 in operating expenses reported in 2003 breaks down as follows: $5 depreciation expense, $155 other operating expenses.
   d. No new long-term debt will be acquired in 2004.
   e. No cash dividends will be paid in 2004.
   f. New short-term loans payable will be acquired in an amount sufficient to make Handyman's current ratio in 2004 exactly equal to 2.0.

Construction of the forecasted statement of cash flows for 2004 involves analyzing the forecasted income statement for 2004, along with the balance sheets for 2003 (actual) and 2004 (forecasted).

For this exercise, the current assets are expected to behave as follows:

   a. Cash will increase at the same rate as sales.
   b. The forecasted amount of accounts receivable in 2004 is determined using the forecasted value for the average collection period (computed using the end-of-period Accounts Receivable balance). The average collection period for 2004 is expected to be 14.08 days. This is from the *Chapter 6 spreadsheet*.

c. The forecasted amount of inventory in 2004 is determined using the forecasted value for the number of days' sales in inventory (computed using the end-of-period Inventory balance). The number of days' sales in inventory for 2004 is expected to be 107.6 days. This is from the *Chapter 7 spreadsheet*.
d. The forecasted amount of accounts payable in 2004 is determined using the forecasted value of the number of days' purchases in accounts payable (computed using the end-of-period Accounts Payable balance). The number of days' purchases in accounts payable for 2004 is expected to be 48.34 days. This is from the *Chapter 7 spreadsheet*.

*Clearly state any additional assumptions that you make.*

2. Repeat (1), with the following changes in assumptions:
   a. The average collection period is expected to be 9.06 days with days' sales in inventory remaining at 107.6 days and days' purchases in payables remaining at 48.34 days.
   b. The average collection period is expected to be 20 days with days' sales in inventory remaining at 107.6 days and days' purchases in payables remaining at 48.34 days.
   c. Days' sales in inventory are expected to be 66.2 days with the average collection period remaining at 14.08 days and days' purchases in payables remaining at 48.34 days.
   d. Days' sales in inventory are expected to be 150 days with the average collection period remaining at 14.08 days and days' purchases in payables remaining at 48.34 days.
3. Comment on the forecasted values of cash from operating activities in 2004 under each of the scenarios given in (2).

## INTERNET SEARCH

***• Home Depot***

Access **HOME DEPOT**'s Web site at **http://www.homedepot.com**. Sometimes Web addresses change, so if this address does not work, access the Web site for this textbook (**http://albrecht.swcollege.com**) for an updated link.

Once you've gained access to the site, answer the following questions:

1. Locate Home Depot's services site and determine how many different ways Home Depot can help you finance your home improvement plans.
2. Home Depot is highly supportive of various community efforts. Use its Web site to identify the community activities that Home Depot sponsors or is associated with.
3. Home Depot's Web site also includes a number of calculators designed to help buyers determine how much of a given item they need to purchase. Access the calculator for ceramic tile and determine how many tiles you would have to purchase if the room is 10 feet by 20 feet, the surface tiles are 12 inches by 12 inches, and the border tiles are 6 inches by 6 inches.
4. Find Home Depot's most recent set of financial statements. In its statement of cash flows, does Home Depot use the direct method or the indirect method in reporting cash from operating activities?

5. In the most recent year, which is greater—Home Depot's net income or its cash flows from operating activities?
6. Did Home Depot pay any cash dividends in the most recent year?

# appendix a

## MICROSOFT CORPORATION
## 1999 ANNUAL REPORT

### FINANCIAL HIGHLIGHTS

msft In millions, except earnings per share

| Year Ended June 30 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|
| Revenue | $6,075 | $9,050 | $11,936 | $15,262 | **$19,747** |
| Net income | 1,453 | 2,195 | 3,454 | 4,490 | **7,785** |
| Diluted earnings per share[1] | 0.29 | 0.43 | 0.66 | 0.84 | **1.42** |
| Cash and short-term investments | 4,750 | 6,940 | 8,966 | 13,927 | **17,236** |
| Total assets | 7,210 | 10,093 | 14,387 | 22,357 | **37,156** |
| Stockholders' equity | 5,333 | 6,908 | 10,777 | 16,627 | **28,438** |

1 Diluted earnings per share have been restated to reflect a two-for-one stock split in March 1999.

### FELLOW SHAREHOLDERS

> Microsoft continued to perform strongly in 1999. Our customers count on us to provide great software that helps them communicate more effectively, work more productively, learn more creatively, and make the most of their leisure time. We worked hard to meet those needs and to set the standard for features, functionality, simplicity, and seamless integration with the Internet in all of our products. The result was remarkable growth and record revenue.

In the years ahead, we will see accelerating change in the software industry, as the computing needs of our customers start to move beyond the PC into a "PC-Plus" world. The PC will undoubtedly remain at the heart of computing at home, work, and school, but it will be joined by numerous new intelligent devices and appliances, from handheld computers and auto PCs to Internet-enabled cellular phones. More software will be delivered over the Internet, and the boundary between online services and software products will blur. The Internet will continue to change everything by offering a level of connectivity that was unimaginable only a few years ago — and every home, business, and school will want to be hooked up to that incredible global database.

Microsoft's vision is to empower people through great software — any time, any place, and on any device. That means helping companies build friction-free knowledge-management systems, so information flows effortlessly through their businesses, and to implement flawless e-commerce operations. It means helping developers create great Web-enabled products for a wide range of devices. It means making PCs simpler and more reliable. It means helping consumers transform the Internet into their own "personal Internet" — a resource that learns from them over time and empowers them with all of the information they need, while protecting their privacy. Everything we do focuses on allowing people and organizations to create and manage their information.

## BUILT AROUND YOU

> In a world of increasing technological complexity, one of our primary goals must be to make our products easier and more effective for customers to use. In part, this entails developing simpler interfaces, natural-language processing, and voice control to help hide the underlying complexity from users. We're working hard to achieve those breakthroughs. But it also means getting closer to our customers and working harder to understand their needs. We must help customers integrate technology by learning about how they work, how information flows through their organization, what they'll need in the future — and about where we're succeeding or failing. Customer-centric thinking must permeate everything we do.

Our growth is always forcing us to look at the best way to stay close to our customers and respond to their needs. This year we organized the company so that its structure is customer-based rather than product-based. The leaders of each of Microsoft's newly defined divisions now have end-to-end management accountability in their respective

customer segments. Guided by the company's overall vision, they have total responsibility for setting a clear mission and priorities for their division, including all product planning and marketing strategies. The divisional leaders also have freedom to form business relationships both inside and outside Microsoft — freedom to work with the parties they need to do the best job for their customers.

Microsoft's mission has always been to connect customers with the information they need. But today there is more information to connect with than ever before, stored in more places than ever before, and accessible in more ways than ever before. By refocusing totally on offering customers what they want rather than what technology can provide, we will help them succeed in the PC-Plus world. We will also build a solid foundation for Microsoft well into the 21st century.

## MANAGING KNOWLEDGE

> An organization's most valuable asset is its knowledge base. It is also the hardest to manage. For the majority of knowledge workers, getting the information they need is still more difficult than it should be. Mostly, it involves creating and distributing paper documents or telephoning and meeting with fellow employees. New digital approaches enabled by our software will make knowledge workers far more efficient.

With its Web-based collaboration tools, Microsoft® Office 2000 is already a powerful component of a knowledge management solution. In the coming year, we will augment it with several other key initiatives. Windows® 2000 Active Directory™ service will simplify administration and make it easier for knowledge workers to find resources throughout their

organization. Future versions of Microsoft Exchange will offer both a platform for unified messaging and our Web Store technology, creating a powerful, centralized communications and knowledge management solution. In the future, we plan to introduce document library and search server technology that will help companies leverage their knowledge bases. Because 50% of work is now done in teams — compared with only 20% a decade ago — we have added team productivity features to the BackOffice® family and other products. And to help organizations realize the dream of a paperless office, our ClearType technology offers on-screen resolution and readability that equals or exceeds that of paper.

To help knowledge workers access information more efficiently, we're also developing what we call a digital dashboard. The digital dashboard is a customized Office 2000 solution that pulls together all of the information that is important to you — regardless of whether it's on your PC, corporate network, or the Internet — and makes it available in one place. A digital dashboard helps you manage and prioritize messages, tasks, information, meetings — in fact, whatever you want. It also gives you access to all of the analytical tools you need to process your data. And it makes all of this available wherever you are, whether on your handheld computer, PC, or smart telephone. The digital dashboard will bring the concept of empowerment any time, any place, and on any device even closer to reality.

## CONNECTING EVERYWHERE

> Microsoft's fundamental vision for Windows is one of total scalability — from embedded operating systems in smart devices such as thermostats and light switches, through Windows CE on handheld PCs, and Web-enabled telephones, to the largest mission-critical server farms. Windows 2000, SQL Server™ 7.0, and the next version of Exchange will take our high-end scalability and around-the-clock availability

far beyond what was thought possible just five years ago, and we expect to make even greater progress in the years ahead. A key to this is using Windows 2000 breakthrough load-balancing to provide scaling and reliability beyond that of the most expensive systems of the past. Web sites can use Windows to easily add capacity and avoid having a single point of failure. The Windows 2000 load-balancing technology automatically redirects tasks to the server that is operating under the least load.

A core requirement of knowledge workers is access to their information wherever they are. Our IntelliMirror™ technology in Windows 2000 will help make that possible, by transparently and automatically backing up and synchronizing your data so that it is available on PCs or intelligent devices.

Your handheld computer, Web-enabled telephone, and PC will synchronize with each other wirelessly and automatically, whether you are in your office or on the road. At Microsoft, some of our employees already use Windows 2000 with a wireless network. When they walk into a meeting room, their laptop is automatically recognized and a "virtual workgroup" of everyone in the room is created. Wireless networks will transform the workplace.

Ubiquitous connectivity will also revolutionize the home, enabling consumers to leverage the power and richness of the PC on any intelligent device, thanks to fast, low-cost wireless networks that will make high-quality audio and video available in every room. For example, our Windows Media™ audio player downloads music twice as fast as previous formats, has double the storage capacity, and offers powerful anti-piracy protection. We're also evolving the WebTV Network™ service, which today has more than 800,000 subscribers, with on-demand programming, personalized viewing, more Web-enhanced content, great games, and powerful communications for the whole family. We aim to help millions of Americans enjoy the digital lifestyle at home as well as at work with exciting offerings such as the CarPoint™ online automotive service, HomeAdvisor™ online real estate service, MoneyCentral™ personal finance service, plus the MSN™ Hotmail Web-based e-mail service, which now has more than 40 million members.

EXPANDING BANDWIDTH

> Microsoft's vision of empowering people through great software — any time, any place, and on any device — depends on helping consumers and businesses advance from today's narrow-band world into a broadband future. Even now, the majority of consumers — along with many small and medium-sized businesses — still access the Internet via their regular telephone lines. The result is that the rich world of real-time interactivity remains a dream for most consumers, while many businesses are reluctant to put videoconferencing or multimedia on their networks, because they fear it will crowd out transaction traffic and other high-priority communications.

Our core strategy here is to make investments that will accelerate the deployment of high-speed broadband networks and to collaborate on the technology that will make interactive services for consumers and businesses run seamlessly across these networks. To that end, we are working with companies that will play a leading role in making broadband Internet and multimedia access widely available. We are enthusiastic about the many technologies that will deliver this, which is why we continue to invest in various infrastructures such as wired and wireless telecommunications, cable, and interactive television. Some of our exciting relationships include AT&T, Nextel Communications, NTL, Rogers Communications, WirelessKnowledge, Concentric Networks, Wink Communications, and more.

THE PC-PLUS ERA

> The enduring popularity of the PC — more than 100 million should be sold worldwide this year — is amazing, but not surprising. In a single, economical package, the PC offers individual students, knowledge workers, and consumers the kind of computing power that was found only in corporate computing departments just a decade ago. Whether you want to communicate, learn, work, or play, the PC can enrich and improve the experience.

In the new millennium, the remarkable power and flexibility of the PC will be available wherever it is needed. The PC-Plus era will be about connectivity, scalability, and simplicity. It will be an era when people are at the center, where technology is a natural extension of the way consumers and businesses think about themselves and their interactions with others. The combination of experience, resources, and research that is unique to Microsoft puts us in a strong position to transform this vision into reality.

We are investing heavily in the future — from world-class customer support to the $3.8 billion we plan to spend in fiscal 2000 on research and development for the products of tomorrow. There is, however, no guarantee of success. Competition continues to intensify, and regulatory pressures are unlikely to ease. Although global PC sales have proved remarkably robust, some slowdown is likely in the coming year. And as Microsoft's business becomes more complex, the strategic challenges and risks we face grow exponentially.

I remain optimistic, because the new opportunities for great software products are still incredible. I appreciate the unwavering support and trust of our shareholders and customers as Microsoft enters the 21st century.

Bill Gates

## INCOME STATEMENTS

msft In millions, except earnings per share

| Year Ended June 30 | 1997 | 1998 | 1999 |
|---|---|---|---|
| Revenue | $11,936 | $15,262 | $19,747 |
| Operating expenses: | | | |
| Cost of revenue | 2,170 | 2,460 | 2,814 |
| Research and development | 1,863 | 2,601 | 2,970 |
| Acquired in-process technology | – | 296 | – |
| Sales and marketing | 2,411 | 2,828 | 3,231 |
| General and administrative | 362 | 433 | 689 |
| Other expenses | 259 | 230 | 115 |
| Total operating expenses | 7,065 | 8,848 | 9,819 |
| Operating income | 4,871 | 6,414 | 9,928 |
| Investment income | 443 | 703 | 1,803 |
| Gain on sale of Softimage, Inc. | – | – | 160 |
| Income before income taxes | 5,314 | 7,117 | 11,891 |
| Provision for income taxes | 1,860 | 2,627 | 4,106 |
| Net income | $ 3,454 | $ 4,490 | $ 7,785 |
| Earnings per share[1]: | | | |
| Basic | $ 0.72 | $ 0.92 | $ 1.54 |
| Diluted | $ 0.66 | $ 0.84 | $ 1.42 |

1 Earnings per share have been restated to reflect a two-for-one stock split in March 1999.

See accompanying notes.

## MANAGEMENT'S DISCUSSION AND ANALYSIS

msft

### RESULTS OF OPERATIONS FOR 1997, 1998, AND 1999

> Microsoft develops, manufactures, licenses, and supports a wide range of software products for a multitude of computing devices. Microsoft software includes scalable operating systems for intelligent devices, personal computers (PCs), and servers; server applications for client/server environments; knowledge worker productivity applications; and software development tools. The Company's online efforts include the MSN network of Internet products and services; e-commerce platforms; and alliances with companies involved with broadband access and various forms of digital interactivity. Microsoft also licenses consumer software programs; sells PC input devices; trains and certifies system integrators; and researches and develops advanced technologies for future software products.

### REVENUE

> The Company's revenue growth rate was 32% in fiscal 1997, 28% in fiscal 1998, and 29% in fiscal 1999. Revenue growth rates reflected the continued adoption of Windows operating systems and Microsoft Office, particularly as Microsoft software is deployed across entire corporate, academic, and governmental organizations. Software license volume increases have been the principal factor in the Company's revenue growth. The average selling price per license has decreased, primarily because of general shifts in the sales mix from retail packaged products to licensing programs, from new products to product upgrades, and from stand-alone desktop applications to integrated product suites. Average revenue per license from original equipment manufacturer (OEM) licenses and organizational license programs is lower than average revenue per license from retail versions. Likewise, product upgrades have lower prices than new products. Also, prices of integrated suites, such as Microsoft Office and BackOffice, are less than the sum of the prices for the individual programs included in these suites when such programs are licensed separately. During each of the three years, an increased percentage of products and programs included elements that were billed but unearned and recognized ratably, such as Microsoft Windows, Microsoft Office, maintenance, and other subscription models. See accompanying notes to financial statements.

As noted above, the Company's business model continues to evolve from selling packaged products to licensing organizational licenses and subscriptions. The Company's products are generally delivered to customers through a multi-tiered channel of distributors and resellers, but the distribution model is also changing for selected retail products that are now being shipped straight to resellers and other selected products that are now being shipped straight to customers. Due to these changes in channel mechanics and the business model, the risk of returns of product from distributors and resellers has declined. Accordingly, the estimate for future product returns was reduced by $250 million in the fourth quarter of fiscal 1999.

The Company changed the way it reports revenue and costs associated with product support, consulting, MSN Internet access, and training and certification of system integrators. Amounts received from customers for these activities have been classified as revenue in a manner more consistent with Microsoft's primary businesses. These amounts had been previously netted in sales and marketing expenses, except for MSN access fees, which had been netted in research and development expenses. Direct costs of these activities are classified as cost of revenue. Prior financial statements and disclosures have been reclassified for consistent presentation. Revenue from these activities was $578 million, $778 million, and $1.06 billion in 1997, 1998, and 1999.

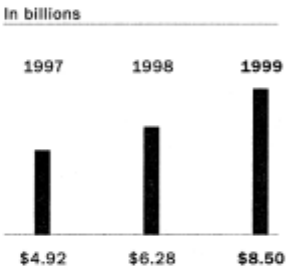
Microsoft also made two changes related to the ratable recognition of revenue for a portion of its revenue for certain products. A new accounting rule that interprets American Institute of Certified Public Accountants (AICPA) Statement of Position (SOP) 97-2, *Software Revenue Recognition,* requires companies to use the average sales price of each undelivered element of software arrangements. Prior authoritative guidance allowed a comparison of the total price differential between a licensed product sold through different channels of distribution to derive the value of undelivered elements

offered to customers acquiring product from one channel but not the other. Upon adoption of this new rule in the fourth quarter of fiscal 1999, the percentages of the total arrangement treated as unearned decreased. This change in the timing of revenue recognition reduced the amount of Microsoft Windows and Microsoft Office sales treated as unearned and increased the amount of revenue recognized upon shipment. Additionally, as part of the Company's long range planning process and a review of product shipment cycles, it was determined that the life cycle of Windows should be extended from two years to three years. The net impact of these changes was to increase reported revenue $80 million in the fourth quarter of 1999.

BUSINESS DIVISIONS > Microsoft has three major segments: Windows Platforms; Productivity Applications and Developer; and Consumer, Commerce, and Other.

> WINDOWS PLATFORMS revenue was $4.92 billion, $6.28 billion, and $8.50 billion in 1997, 1998, and 1999. Platform revenue is primarily licenses of PC operating systems and business and enterprise server systems with client/server, Internet, and intranet architectures.

WINDOWS PLATFORMS REVENUE

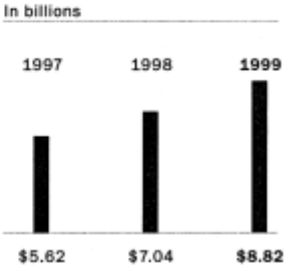



The Company's principal PC operating systems are Windows 95, Windows 98, and Windows NT® Workstation. Windows 95 was released in August 1995, while its successor, Windows 98, became available at the end of fiscal 1998. Windows NT Workstation version 4.0 was released in fiscal 1997. Although the growth rate of new PC shipments slowed, PC operating systems contributed to revenue growth as shipments of new PCs preinstalled with such systems increased during the three-year period. Additionally, increased penetration of the higher value Windows NT Workstation led to growth in all three years.

Windows NT Server is a comprehensive business and enterprise server operating system, combining application, file and print, communication, and Web services. Windows NT Server version 4.0 was released in fiscal 1997. Revenue from Windows NT Server increased strongly during each of the three years due to greater corporate demand, particularly for intranet computing solutions.

> PRODUCTIVITY APPLICATIONS AND DEVELOPER revenue was $5.62 billion, $7.04 billion, and $8.82 billion in 1997, 1998, and 1999. Products include primarily desktop applications, server applications, and software developer tools.

PRODUCTIVITY APPLICATIONS AND DEVELOPER REVENUE



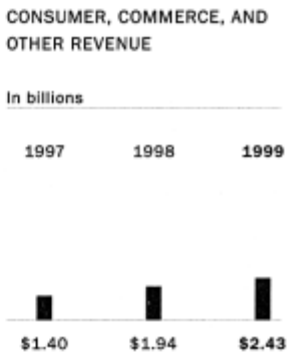

Microsoft Office integrated suites, including the Standard, Small Business, Professional, and Premium Editions, are the Company's principal desktop applications and a key driver of revenue growth. Microsoft Office 97 was released in fiscal 1997 and Microsoft Office 2000 was released at the end of fiscal 1999. The primary programs in Microsoft Office are the word processor Microsoft Word, Microsoft Excel spreadsheet, and Microsoft Outlook® messaging and collaboration client. Various versions of Office, which are available for the Windows and Macintosh operating systems, also include Microsoft Access database management program, Microsoft PowerPoint® presentation graphics program, Microsoft FrontPage® Web site creation and management program, or other programs. Revenue from stand-alone versions of Microsoft Excel, Word, and PowerPoint continued to decrease as the sales mix shifted to integrated product suites.

Server applications, based on Microsoft Windows NT Server, offer an enterprise-wide distributed client/server, Internet, and intranet environment. Products include Microsoft Exchange Server, Microsoft SQL Server, and other server applications in the Microsoft BackOffice family of products. Microsoft Exchange is an enterprise messaging and collaboration server while Microsoft SQL Server is a scalable database and data warehouse platform. Revenue from these products increased strongly over the three-year period, albeit with slowing growth rates in 1998 and 1999.

Independent software vendors, corporate developers, and solutions developers license tools such as the Microsoft Visual Studio® development system, which includes the Microsoft Visual Basic® development system, to develop software for the Windows operating systems and the Internet. Revenue from developer products increased moderately in 1997, was flat in 1998, and increased strongly in 1999.

Although revenue was not significant, preinstallations of Windows CE by OEMs on intelligent devices were strong in 1998 and 1999.

> CONSUMER, COMMERCE, AND OTHER revenue was $1.40 billion, $1.94 billion, and $2.43 billion in 1997, 1998, and 1999. This category of product revenue includes learning and entertainment software; PC input devices; training and certification fees; consulting; and the online services. The Company's Internet services include the MSN portal, MSN access, WebTV®, and vertical properties such as MSN Hotmail Web-based e-mail service, Expedia.com™ travel site, CarPoint car buying site, and MoneyCentral personal finance site.




Learning and entertainment revenue was relatively flat in all three years. Mouse, gaming device, and keyboard sales increased in 1997 and 1998, but were steady in 1999. Training and certification fees from system integrators, along with consulting services to large enterprise customers and technology solution providers, increased strongly in all three years. Revenue from MSN Internet access fees and WebTV services increased due to higher subscriber levels. Advertising revenue, although relatively small in amount, increased exceptionally well in 1999 for the online portal and vertical properties.

SALES CHANNELS > Microsoft distributes its products primarily through OEM licenses, organizational licenses, and retail packaged products. OEM channel revenue represents license fees from original equipment manufacturers who preinstall Microsoft products, primarily on PCs. Microsoft has three major geographic sales and marketing organizations: the South Pacific and Americas Region; the Europe, Middle East, and Africa Region; and the Asia Region. Sales of organizational licenses and packaged products via these channels are primarily to and through distributors and resellers.

OEM channel revenue was $3.49 billion in 1997, $4.72 billion in 1998, and $6.40 billion in 1999. The primary source of OEM revenue is the licensing of desktop operating systems, and OEM revenue is highly dependent on PC shipment volume. Growth was also enhanced by increased penetration of higher-value Windows NT Workstation licenses.

Revenue in the South Pacific and Americas Region was $4.39 billion, $5.57 billion, and $7.25 billion in 1997, 1998, and 1999. Revenue in the Europe, Middle East, and Africa Region was $2.77 billion, $3.50 billion, and $4.33 billion for the three years. Growth rates have been lower in Europe than in other geographic areas due to higher existing market shares and a faster shift to licensing programs. Asia Region revenue was $1.29 billion in 1997, $1.48 billion in 1998, and $1.78 billion in 1999. After strong growth in prior years, revenue was relatively flat in Japan and Southeast Asia in 1998 and the first half of fiscal 1999 due to economic issues and weak currencies.

The Company's operating results are affected by foreign exchange rates. Approximately 32%, 32%, and 29% of the Company's revenue was collected in foreign currencies during 1997, 1998, and 1999. Since a portion of local currency revenue is hedged and much of the Company's international manufacturing costs and operating expenses are also incurred in local currencies, the impact of exchange rates is partially mitigated.

## OPERATING EXPENSES

> Microsoft encourages broad-based employee ownership of Microsoft stock through an employee stock option (ESO) program in which most employees are eligible to participate. Historically, exercise prices of grants of ESOs were struck at the lowest price in the 30 days following July 1 for annual grants and the 30 days after the start date for new employees. In connection with this practice, which is no longer employed, a charge of $217 million was recorded in the fourth quarter for fiscal 1999 compensation expense, calculated under the provisions of Accounting Principles Board Opinion 25 (APB 25). Charges related to ESO compensation were reflected in 1999 operating expenses as follows (in millions):

| | |
|---|---|
| Cost of revenue | **$ 44** |
| Research and development | **105** |
| Sales and marketing | **46** |
| General and administrative | **22** |
| Total | **$217** |

> COST OF REVENUE Cost of revenue as a percent of revenue was 18.2% in 1997, 16.1% in 1998, and 14.3% in 1999. The percentage decreases resulted primarily from the trend in mix shift to OEM and organizational licenses. The decrease was also due to the shifts in mix to CD-ROMs (which carry lower cost of goods than disks) and higher-margin Windows NT Server, other servers, and client access licenses in the BackOffice product family. Additionally, cost of revenue in 1999 was positively impacted by a reduction in estimates of obsolete inventory and other manufacturing costs of $67 million. As discussed above, the Company's business model continues to evolve toward licensing from sales of packaged products through distribution channels. Consequently, risks associated with manufacturing and holding physical product have declined.

> RESEARCH AND DEVELOPMENT Microsoft continued to invest heavily in the future by funding research and development (R&D). Expense increases in 1997, 1998, and 1999 resulted primarily from development staff headcount growth in many areas, particularly Windows platforms, including PC operating systems, servers, and Internet and intranet technologies. R&D costs also increased for productivity applications, development tools, and online services.

In 1998, the Company acquired WebTV Networks, Inc., an online service that enables consumers to experience the Internet through their televisions via set-top terminals. Microsoft paid $425 million in stock and cash. The accompanying income statement reflects a one-time write-off of in-process technologies under development by WebTV Networks of $296 million.

> SALES AND MARKETING The increase in the absolute dollar amount of sales and marketing expenses in the three-year period was due primarily to expanded product-specific marketing programs, such as Office 97 in 1997, Windows 98 in 1998, and Office 2000 in 1999. Sales and marketing costs as a percentage of revenue decreased primarily due to moderate headcount growth. Microsoft brand advertising expenses rose slightly in 1998, but declined in 1999.

> GENERAL AND ADMINISTRATIVE Increases in general and administrative expenses were attributable to higher legal fees, litigation costs, and growth in the number of people and computer systems necessary to support overall increases in the scope of the Company's operations.

> OTHER EXPENSES Other expenses include the recognition of Microsoft's share of joint venture activities, including DreamWorks Interactive and the MSNBC entities.

## INVESTMENT INCOME, GAIN ON SALE, AND INCOME TAXES

> Investment income increased primarily as a result of a larger investment portfolio generated by cash from operations in 1997, 1998, and 1999, coupled with realized gains from the sale of certain bond and equity securities in 1999.

In fiscal 1999, Microsoft sold its Softimage, Inc. subsidiary to Avid Technology, Inc. for a pretax gain of $160 million.

The effective income tax rate was 35.0% in 1997. The effective income tax rate increased to 36.9% in 1998 due to the nondeductible write-off of WebTV in-process technologies. Excluding the impact of the gain on the sale of Softimage, Inc., the effective tax rate for fiscal 1999 was 35.0%.

## NET INCOME

> Net income as a percent of revenue increased in 1997, 1998, and 1999 due primarily to the lower relative cost of revenue and sales and marketing expenses, combined with greater investment income.

## FINANCIAL CONDITION

> The Company's cash and short-term investment portfolio totaled $17.24 billion at June 30, 1999. The portfolio is diversified among security types, industries, and individual issuers. Microsoft's investments are generally liquid and investment grade. The portfolio is invested predominantly in U.S. dollar denominated securities, but also includes foreign currency positions in anticipation of continued international expansion. The portfolio is primarily invested in short-term securities to minimize interest rate risk and facilitate rapid deployment in the event of immediate cash needs.

Microsoft also invests in equities, primarily strategic technology companies. The Company has made large-scale investments in access providers, including cable, telephony, and wireless communications companies. During 1999, the Company purchased $5.0 billion of AT&T convertible preferred securities and warrants, $600 million of Nextel Communications, Inc. common stock, $500 million of NTL, Inc. convertible preferred stock, $330 million of United Pan-Europe Communications common stock, and $200 million of Qwest Communications International Inc. common stock. In connection with AT&T's proposed merger with MediaOne Group, Inc., the Company agreed to acquire MediaOne's interest in Telewest Communications plc, a leading provider of cable television and residential and business cable telephony services in the United Kingdom, subject to certain regulatory approvals and other conditions. During 1997, Microsoft purchased $1.0 billion of Special Class A common stock and convertible preferred stock of Comcast Corporation. Microsoft also owns an interest in MCI WorldCom, Inc.

Microsoft and National Broadcasting Company (NBC) operate two MSNBC joint ventures: a 24-hour cable news and information channel, and an interactive online news service. Microsoft is paying $220 million over a five-year period that ends in 2001 for its interest in the cable venture and one-half of the operational funding of both joint ventures. Microsoft guarantees a portion of MSNBC debt.

Microsoft has no material long-term debt and has $100 million of standby multicurrency lines of credit to support foreign currency hedging and cash management. Stockholders' equity at June 30, 1999 was $28.44 billion.

Microsoft will continue to invest in sales, marketing, and product support infrastructure. Additionally, research and development activities will include investments in existing and advanced areas of technology, including using cash to acquire technology. Additions to property and equipment will continue, including new facilities and computer systems for R&D, sales and marketing, support, and administrative staff. Commitments for constructing new buildings were $275 million on June 30, 1999. Cash will also be used to fund ventures and other strategic opportunities.

In addition, cash will be used to repurchase common stock to provide shares for employee stock option and purchase plans. The buyback program has not kept pace with employee stock option grants or exercises. Beginning in fiscal 1990, Microsoft has repurchased 710 million common shares while 1.79 billion shares were issued under the Company's employee stock option and purchase plans. The market value of all outstanding stock options was $69 billion as of June 30, 1999. Microsoft enhances its repurchase program by selling put warrants. During December 1996, Microsoft issued 12.5 million shares of 2.75% convertible exchangeable preferred stock. Net proceeds of $980 million were used to repurchase common shares. In December 1999, each preferred share is convertible into common shares or an equivalent amount of cash determined by a formula that provides a floor price of $79.875 and a cap of $102.24 per preferred share, equivalent to $19.97 and $25.56 per common share.

Management believes existing cash and short-term investments together with funds generated from operations will be sufficient to meet operating requirements for the next 12 months. The Company's cash and short-term investments are available for strategic investments, mergers and acquisitions, other potential large-scale cash needs that may arise, and to fund an increased stock buyback program over historical levels to reduce the dilutive impact of the Company's employee stock option and purchase programs.

Microsoft has not paid cash dividends on its common stock. The preferred stock pays $2.196 per annum per share.

## ISSUES AND UNCERTAINTIES

> While Microsoft management is optimistic about the Company's long-term prospects, the following issues and uncertainties, among others, should be considered in evaluating its growth outlook.

> RAPID TECHNOLOGICAL CHANGE AND COMPETITION Rapid change, uncertainty due to new and emerging technologies, and fierce competition characterize the PC software industry. The pace of change continues to accelerate, including "open source" software, new computing devices, new microprocessor architectures, the Internet, and Web-based computing models.

> FUTURE INITIATIVES The Company continues to expand its efforts to provide and support mission-critical systems to large enterprises. Microsoft is also developing a Windows Web-centric platform and simpler and new natural interfaces for PC users. Additionally, Microsoft is committed to providing technologies, operating systems, and online services for all types of computing devices, including PCs, televisions, and intelligent appliances. Future revenue from these initiatives may not duplicate historical revenue growth rates.

> PC GROWTH RATES The underlying PC unit growth rate and percentage of new PCs acquired as replacement units directly impact the Company's software revenue growth. Additionally, inexpensive PCs and specialty devices create less demand for Microsoft software than traditional PCs. The PC shipment growth rate may continue to decrease, the replacement rate may continue to increase, and limited-use PC growth may increase, reducing future software revenue opportunity.

> PRODUCT SHIP SCHEDULES Potential delays in new product releases, including seminal products such as Windows 2000, could dampen revenue growth rates and cause operational inefficiencies that impact manufacturing and distribution logistics and relationships with customers, OEMs, and independent software vendors.

> CUSTOMER ACCEPTANCE While the Company performs extensive usability and beta testing of new products, user acceptance and corporate penetration rates ultimately dictate the success of development and marketing efforts.

> PRICES Future product prices may decrease from historical levels, depending on competitive market and cost factors. European and Asian software prices vary by country and are generally higher than in the United States to cover localization costs and higher costs of distribution. Increased global license agreements, European monetary unification, or other factors could erode such price uplifts in the future.

> SATURATION Product upgrades, which enable users to upgrade from earlier versions of the Company's products or from competitors' products, have lower prices and margins than new products. Also, penetration of the Company's desktop applications into large organizations is becoming saturated. These factors are likely to depress future desktop applications revenue growth.

> ORGANIZATIONAL LICENSES Average revenue per unit from organizational license programs is lower than average revenue per unit from retail versions shipped through the finished goods channels. Unit sales under licensing programs may continue to increase.

> EARNINGS PROCESS An increasingly higher percentage of the Company's revenue is subject to ratable recognition, which impacts the timing of revenue and earnings recognition. This policy may be required for additional products, depending on specific license terms and conditions. Also, maintenance and other subscription programs may continue to increase in popularity, particularly with organizations.

> CHANNEL MIX Average revenue per license is lower from OEM licenses than from retail versions, reflecting the relatively lower direct costs of operations in the OEM channel. An increasingly higher percentage of revenue was achieved through the OEM channel during 1998 and 1999.

> COST OF REVENUE Decreases in cost of revenue as a percentage of revenue in 1998 and 1999 were due to general shifts from packaged products to OEM and organizational licenses, from lower-margin products to higher-margin products, and from disks to CD-ROMs. These shifts may not continue. Direct costs of product support; services such as consulting and training and certification of system integrators; and online operations comprise the majority of cost of revenue and are not likely to decrease. The trend of declining cost of revenue as a percentage of revenue is unlikely to continue in 2000.

> EMPLOYEE COMPENSATION Microsoft employees currently receive salaries, incentive bonuses, other benefits, and stock options. Fiscal 2000 salaries will be enhanced, with the mid-point salary range raised from the 50th to the 65th percentile of competitive positions. Additionally, new government regulations, poor stock price performance, or other factors could diminish the value of the option program to current and prospective employees and force the Company into more of a cash compensation model. Had the Company paid employees in cash the equivalent of the Black-Scholes value of options vested in 1997, 1998, and 1999, the incremental pretax expense would have been approximately $620 million, $850 million, and $1.10 billion.

> LONG-TERM R&D INVESTMENT CYCLE Developing and localizing software is expensive, and the investment in product development often involves a long payback cycle. The Company plans to continue significant investments in software research and development, including online initiatives. Significant revenue from these product opportunities is not anticipated for a number of years. Total spending for R&D in 2000 will increase over spending in 1999.

> SALES AND MARKETING INVESTMENTS The Company's plans for 2000 include accelerated investments in its sales groups, customer satisfaction, and marketing activities.

> INTERNATIONAL OPERATIONS Much of the Company's operations are conducted outside of the United States, and a large percentage of sales, costs of manufacturing, and marketing is transacted in local currencies. As a result, the Company's international results of operations are subject to local economic environments and foreign exchange rate fluctuations.

> MARKET RISK The Company is exposed to foreign currency, interest rate, and equity price risks. A portion of these risks is hedged, but fluctuations could impact the Company's results of operations and financial position. The Company hedges the exposure of accounts receivable and a portion of anticipated revenue to foreign currency fluctuations, primarily with option contracts. The Company monitors its foreign currency exposures daily to ensure the overall effectiveness of its foreign currency hedge positions. Principal currencies hedged include the Japanese yen, British pound, German mark, French franc, and Canadian dollar. Fixed income securities are subject to interest rate risk. The portfolio is diversified and consists primarily of investment grade securities to minimize credit risk. The Company routinely hedges its exposure to interest rate risk with options in the event of a catastrophic increase in interest rates. Many securities held in the Company's equity and other investments portfolio are subject to equity price risk. The Company hedges its equity price risk on certain highly volatile equity securities with options.

The Company used a value-at-risk (VAR) model to estimate and quantify its market risks. The VAR model is not intended to represent actual losses in fair value, but is used as a risk estimation and management tool. Assumptions applied to the VAR model at June 30, 1999 include the following: normal market conditions; Monte Carlo modeling with 10,000 simulated market price paths; a 97.5% confidence interval; and a 20-day estimated loss in fair value for each market risk category. Accordingly, 97.5% of the time the estimated 20-day loss in fair value would be nominal for foreign currency denominated investments and accounts receivable, and would not exceed $95 million for interest-sensitive investments or $1.38 billion for equity securities.

Previously, the Company used a sensitivity analysis to estimate interest rate and equity price risk. A 10% increase in interest rates would have reduced the carrying value of interest-sensitive securities by $128 million and $101 million at June 30, 1998 and 1999. A 10% decrease in market values would have reduced the carrying value of the Company's equity securities by $300 million and $1.37 billion at June 30, 1998 and 1999.

> INTELLECTUAL PROPERTY RIGHTS Microsoft diligently defends its intellectual property rights, but unlicensed copying of software represents a loss of revenue to the Company. While this adversely affects U.S. revenue, revenue loss is even more significant outside of the United States, particularly in countries where laws are less protective of intellectual property rights. Throughout the world, Microsoft actively educates consumers on the benefits of licensing genuine products and educates lawmakers on the advantages of a business climate where intellectual property rights are protected. However, continued efforts may not affect revenue positively.

> LITIGATION Litigation regarding intellectual property rights, patents, and copyrights occurs in the PC software industry. In addition, there are government regulation and investigation risks along with other general corporate legal risks.

> YEAR 2000 The Year 2000 presents potential concerns for business and consumer computing. In addition to the well-known calculation problems with the use of 2-digit date formats as the year changes from 1999 to 2000, the Year 2000 is a special case leap year and in many organizations using older technology, dates were used for special programmatic functions. The problem exists for many kinds of software and hardware, including mainframes, mini computers, PCs, and embedded systems. The consequences of this issue may include systems failures and business process interruption.

Microsoft has tested more than 3,000 versions/languages of its products. The vast majority of these tested products are Year 2000 compliant, as defined by Microsoft. There are a small number of older products that are identified as being non-compliant, and Microsoft will provide recommendations regarding these products. Not all versions of products or all products will be tested. All Year 2000 software updates, resources, and tools are available to customers at no charge from the Microsoft Year 2000 Portal Page or Microsoft Year 2000 Resource CD.

Current information needed to evaluate the impact of the Year 2000 on organizational and home computing environments is available at the Microsoft Year 2000 Portal Page (www.microsoft.com/year2000) and the Microsoft Year 2000 Resource CD, which is released on a quarterly basis. The Web site and Microsoft Year 2000 Resource CD detail specific Year 2000 information concerning Microsoft products and technologies for large organizations. The detailed information available on the Web site and Microsoft Year 2000 Resource CD is presented to assist information technology (IT) professionals in planning their transition to the Year 2000. The Microsoft Year 2000 Portal Page also contains information for small business and home PC users, including in-depth product information, answers to frequently asked questions, and links to the other Year 2000 sites.

Variability of definitions of "compliance" with the Year 2000 and of different combinations of software, firmware, and hardware will likely lead to lawsuits against the Company. The outcome of such lawsuits and the impact on the Company are not estimable at this time.

The Year 2000 issue also affects the Company's internal systems, including IT and non-IT systems. Microsoft has assessed the readiness of its mission-critical systems for handling the Year 2000. Although testing and remediation of all systems have not been completed, management currently believes that all mission-critical systems will be compliant by the Year 2000 and that the cost to address the issues is not material. Nevertheless, Microsoft is creating contingency plans for certain internal systems.

Microsoft is addressing the effect this issue will have on its third-party supply chain and has undertaken steps to formulate a system of working with key third parties to understand their ability to continue providing services and products through the change to 2000. Microsoft is working directly with its key vendors, distributors, and resellers to avoid material business interruptions in 2000. Contingency plans are being developed where practicable for these key third parties.

Resolving Year 2000 issues is a worldwide phenomenon that is absorbing a substantial portion of IT budgets and attention. Certain industry analysts believe the Year 2000 issue will accelerate the trend toward distributed PC-based systems from mainframe systems, while others believe a majority of IT resources will be devoted to fixing older mainframe software in lieu of large-scale transitions to systems based on software such as that developed by Microsoft. The impact of the Year 2000 on future Microsoft revenue is difficult to discern, but it is a risk to be considered in evaluating the future growth of the Company.

> FUTURE GROWTH RATE The revenue growth rate in 2000 may not approach the level attained in prior years. As discussed previously, operating expenses are expected to increase in 2000. Because of the fixed nature of a significant portion of such expenses, coupled with the possibility of slower revenue growth, operating margins in 2000 may decrease from those in 1999.

## CASH FLOWS STATEMENTS

msft In millions

| Year Ended June 30 | 1997 | 1998 | 1999 |
|---|---|---|---|
| **Operations** | | | |
| Net income | $ 3,454 | $ 4,490 | $ 7,785 |
| Depreciation and amortization | 557 | 1,024 | 1,010 |
| Write-off of acquired in-process technology | – | 296 | – |
| Gain on sale of Softimage, Inc. | – | – | (160) |
| Unearned revenue | 1,601 | 3,268 | 5,877 |
| Recognition of unearned revenue from prior periods | (743) | (1,798) | (4,526) |
| Other current liabilities | 321 | 208 | 966 |
| Accounts receivable | (336) | (520) | (687) |
| Other current assets | (165) | (88) | (235) |
| Net cash from operations | 4,689 | 6,880 | 10,030 |
| **Financing** | | | |
| Common stock issued | 744 | 959 | 1,350 |
| Common stock repurchased | (3,101) | (2,468) | (2,950) |
| Put warrant proceeds | 95 | 538 | 766 |
| Preferred stock issued | 980 | – | – |
| Preferred stock dividends | (15) | (28) | (28) |
| Stock option income tax benefits | 796 | 1,553 | 3,107 |
| Net cash from (used for) financing | (501) | 554 | 2,245 |
| **Investing** | | | |
| Additions to property and equipment | (499) | (656) | (583) |
| Cash portion of WebTV purchase price | – | (190) | – |
| Cash proceeds from sale of Softimage, Inc. | – | – | 79 |
| Purchases of investments | (18,216) | (19,114) | (36,441) |
| Maturities of investments | 1,874 | 1,890 | 4,674 |
| Sales of investments | 13,752 | 10,798 | 21,080 |
| Net cash used for investing | (3,089) | (7,272) | (11,191) |
| Net change in cash and equivalents | 1,099 | 162 | 1,084 |
| Effect of exchange rates on cash and equivalents | 6 | (29) | 52 |
| Cash and equivalents, beginning of year | 2,601 | 3,706 | 3,839 |
| Cash and equivalents, end of year | 3,706 | 3,839 | 4,975 |
| Short-term investments | 5,260 | 10,088 | 12,261 |
| Cash and short-term investments | $ 8,966 | $ 13,927 | $ 17,236 |

See accompanying notes.

## BALANCE SHEETS

msft In millions

| June 30 | 1998 | 1999 |
|---|---|---|
| Assets | | |
| Current assets: | | |
| Cash and short-term investments | $13,927 | $17,236 |
| Accounts receivable | 1,460 | 2,245 |
| Other | 502 | 752 |
| Total current assets | 15,889 | 20,233 |
| Property and equipment | 1,505 | 1,611 |
| Equity and other investments | 4,703 | 14,372 |
| Other assets | 260 | 940 |
| Total assets | $22,357 | $37,156 |
| Liabilities and stockholders' equity | | |
| Current liabilities: | | |
| Accounts payable | $ 759 | $ 874 |
| Accrued compensation | 359 | 396 |
| Income taxes payable | 915 | 1,607 |
| Unearned revenue | 2,888 | 4,239 |
| Other | 809 | 1,602 |
| Total current liabilities | 5,730 | 8,718 |
| Commitments and contingencies | | |
| Stockholders' equity: | | |
| Convertible preferred stock – shares authorized 100; shares issued and outstanding 13 | 980 | 980 |
| Common stock and paid-in capital – shares authorized 12,000; shares issued and outstanding 4,940 and 5,109 | 8,025 | 13,844 |
| Retained earnings, including other comprehensive income of $666 and $1,787 | 7,622 | 13,614 |
| Total stockholders' equity | 16,627 | 28,438 |
| Total liabilities and stockholders' equity | $22,357 | $37,156 |

See accompanying notes.

## STOCKHOLDERS' EQUITY STATEMENTS

msft In millions

| Year Ended June 30 | 1997 | 1998 | 1999 |
|---|---|---|---|
| Convertible preferred stock | | | |
| Balance, beginning of year | – | $ 980 | $ 980 |
| Convertible preferred stock issued | $ 980 | – | – |
| Balance, end of year | 980 | 980 | 980 |
| Common stock and paid-in capital | | | |
| Balance, beginning of year | 2,924 | 4,509 | 8,025 |
| Common stock issued | 744 | 1,262 | 2,338 |
| Common stock repurchased | (91) | (165) | (64) |
| Structured repurchases price differential | – | 328 | (328) |
| Proceeds from sale of put warrants | 95 | 538 | 766 |
| Reclassification of put warrant obligation | 45 | – | – |
| Stock option income tax benefits | 792 | 1,553 | 3,107 |
| Balance, end of year | 4,509 | 8,025 | 13,844 |
| Retained earnings | | | |
| Balance, beginning of year | 3,984 | 5,288 | 7,622 |
| Net income | 3,454 | 4,490 | 7,785 |
| Other comprehensive income: | | | |
| Net unrealized investment gains | 280 | 627 | 1,052 |
| Translation adjustments and other | 5 | (124) | 69 |
| Comprehensive income | 3,739 | 4,993 | 8,906 |
| Preferred stock dividends | (15) | (28) | (28) |
| Common stock repurchased | (3,010) | (2,631) | (2,886) |
| Reclassification of put warrant obligation | 590 | – | – |
| Balance, end of year | 5,288 | 7,622 | 13,614 |
| Total stockholders' equity | $10,777 | $16,627 | $28,438 |

See accompanying notes.

## NOTES TO FINANCIAL STATEMENTS

### msft ACCOUNTING POLICIES

> ACCOUNTING PRINCIPLES The financial statements and accompanying notes are prepared in accordance with generally accepted accounting principles.

> PRINCIPLES OF CONSOLIDATION The financial statements include the accounts of Microsoft and its subsidiaries. Significant intercompany transactions and balances have been eliminated. Investments in 50% owned joint ventures are accounted for using the equity method; the Company's share of joint ventures' activities is reflected in other expenses.

> ESTIMATES AND ASSUMPTIONS Preparing financial statements requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, and expenses. Examples include provisions for returns and bad debts and the length of product life cycles and buildings' lives. Actual results may differ from these estimates.

> FOREIGN CURRENCIES Assets and liabilities recorded in foreign currencies are translated at the exchange rate on the balance sheet date. Translation adjustments resulting from this process are charged or credited to other comprehensive income. Revenue and expenses are translated at average rates of exchange prevailing during the year. Gains and losses on foreign currency transactions are included in other expenses.

> REVENUE RECOGNITION Revenue is recognized when earned. The Company's revenue recognition policies are in compliance with all applicable accounting regulations, including American Institute of Certified Public Accountants (AICPA) Statement of Position (SOP) 97-2, *Software Revenue Recognition,* and SOP 98-9, *Modification of SOP 97-2, With Respect to Certain Transactions.* Revenue from products licensed to original equipment manufacturers is recorded when OEMs ship licensed products while revenue from certain license programs is recorded when the software has been delivered and the customer is invoiced. Revenue from packaged product sales to and through distributors and resellers is recorded when related products are shipped. Maintenance and subscription revenue is recognized ratably over the contract period. Revenue attributable to undelivered elements, including technical support and Internet browser technologies, is based on the average sales price of those elements and is recognized ratably on a straight-line basis over the product's life cycle. When the revenue recognition criteria required for distributor and reseller arrangements are not met, revenue is recognized as payments are received. Costs related to insignificant obligations, which include telephone support for certain products, are accrued. Provisions are recorded for returns and bad debts.

> COST OF REVENUE Cost of revenue includes direct costs to produce and distribute product and direct costs to provide online services, consulting, product support, and training and certification of system integrators.

> RESEARCH AND DEVELOPMENT Research and development costs are expensed as incurred. Statement of Financial Accounting Standards (SFAS) 86, *Accounting for the Costs of Computer Software to Be Sold, Leased, or Otherwise Marketed,* does not materially affect the Company.

> INCOME TAXES Income tax expense includes U.S. and international income taxes, plus the provision for U.S. taxes on undistributed earnings of international subsidiaries. Certain items of income and expense are not reported in tax returns and financial statements in the same year. The tax effect of this difference is reported as deferred income taxes. Tax credits are accounted for as a reduction of tax expense in the year in which the credits reduce taxes payable.

NOTES continued

> STOCK SPLIT During March 1999, outstanding shares of common stock were split two-for-one. All share and per share amounts have been restated.

> FINANCIAL INSTRUMENTS The Company considers all liquid interest-earning investments with a maturity of three months or less at the date of purchase to be cash equivalents. Short-term investments generally mature between three months and six years from the purchase date. All cash and short-term investments are classified as available for sale and are recorded at market using the specific identification method; unrealized gains and losses are reflected in other comprehensive income. Cost approximates market for all classifications of cash and short-term investments; realized and unrealized gains and losses were not material.

Equity and other investments include debt and equity instruments. Debt securities and publicly traded equity securities are classified as available for sale and are recorded at market using the specific identification method. Unrealized gains and losses are reflected in other comprehensive income. All other investments, excluding joint venture arrangements, are recorded at cost.

Derivative financial instruments are used to hedge certain investments, international revenue, accounts receivable, and interest rate risks, and are, therefore, held primarily for purposes other than trading. These instruments may involve elements of credit and market risk in excess of the amounts recognized in the financial statements. The Company monitors its positions and the credit quality of counter parties, consisting primarily of major financial institutions, and does not anticipate nonperformance by any counter party.

During June 1999, the Financial Accounting Standards Board (FASB) issued SFAS 137, *Accounting for Derivative Instruments and Hedging Activities – Deferral of the Effective Date of FASB Statement 133*. The Statement defers the effective date of SFAS 133 to fiscal 2001. Management is evaluating SFAS 133 and does not believe that adoption of the Statement will have a material impact on its financial statements.

> PROPERTY AND EQUIPMENT Property and equipment is stated at cost and depreciated using the straight-line method over the shorter of the estimated life of the asset or the lease term, ranging from one to 15 years.

> RECLASSIFICATIONS The Company changed the way it reports revenue and costs associated with product support, consulting, MSN Internet access, and certification and training of system integrators. Amounts received from customers for these activities have been classified as revenue in a manner more consistent with Microsoft's primary businesses. Direct costs of these activities are classified as cost of revenue. Prior financial statements have been reclassified for consistent presentation. Certain other reclassifications have also been made for consistent presentation.

UNEARNED REVENUE

> A portion of Microsoft's revenue is earned ratably over the product life cycle or, in the case of subscriptions, over the period of the license agreement.

End users receive certain elements of the Company's products over a period of time. These elements include browser technologies and technical support. Consequently, Microsoft's earned revenue reflects the recognition of the fair value of these elements over the product's life cycle. Upon adoption of SOP 98-9 during the fourth quarter of fiscal 1999, the Company was required to change the methodology

NOTES continued

of attributing the fair value to undelivered elements. The percentages of undelivered elements in relation to the total arrangement decreased, reducing the amount of Windows and Office revenue treated as unearned, and increasing the amount of revenue recognized upon shipment. The percentage of revenue recognized ratably decreased from a range of 20% to 35% to a range of approximately 15% to 25% of Windows desktop operating systems. For desktop applications, the percentage decreased from approximately 20% to a range of approximately 10% to 20%. The ranges depend on the terms and conditions of the license and prices of the elements. The impact on fiscal 1999 was to increase reported revenue $170 million. In addition, the Company extended the life cycle of Windows from two to three years based upon management's review of product shipment cycles. The impact on fiscal 1999 was to decrease reported revenue $90 million. Product life cycles are currently estimated at 18 months for desktop applications. The Company also sells subscriptions to certain products via maintenance and certain organizational license agreements. At June 30, 1999, Windows platforms products unearned revenue was $2.17 billion and unearned revenue associated with productivity applications and developer products totaled $1.96 billion. Unearned revenue for other miscellaneous programs totaled $116 million at June 30, 1999.

FINANCIAL RISKS

> The Company's cash and short-term investment portfolio is diversified and consists primarily of investment grade securities. Investments are held with high-quality financial institutions, government and government agencies, and corporations, thereby reducing credit risk concentrations. Interest rate fluctuations impact the carrying value of the portfolio. The Company routinely hedges the portfolio's return with options in the event of a catastrophic increase in interest rates. At June 30, 1999, the notional amount of the options outstanding was $4.0 billion. The fair value and premiums paid for the options were not material. Much of the Company's equity security portfolio is highly volatile, so certain positions are hedged.

Finished goods sales to international customers in Europe, Japan, Canada, and Australia are primarily billed in local currencies. Payment cycles are relatively short, generally less than 90 days. Certain international manufacturing and operational costs are disbursed in local currencies. Local currency cash balances in excess of short-term operating needs are generally converted into U.S. dollar cash and short-term investments on receipt. Although foreign exchange rate fluctuations generally do not create a risk of material balance sheet gains or losses, the Company hedges a portion of accounts receivable balances denominated in local currencies, primarily with purchased options. At June 30, 1999, the notional amount of options outstanding was $662 million. The fair value and premiums paid for the options were not material.

Foreign exchange rates affect the translated results of operations of the Company's foreign subsidiaries. The Company hedges a portion of planned international revenue with purchased options. The notional amount of the options outstanding at June 30, 1999 was $2.25 billion. The fair value and premiums paid for the options were not material.

At June 30, 1998 and 1999, approximately 40% and 50% of accounts receivable represented amounts due from 10 customers. One customer accounted for approximately 12%, 8%, and 11% of revenue in 1997, 1998, and 1999.

Microsoft lends certain fixed income and equity securities to enhance investment income. Adequate collateral and/or security interest is determined based upon the underlying security and the credit worthiness of the borrower.

NOTES continued (in millions)

## CASH AND SHORT-TERM INVESTMENTS

| June 30 | 1998 | 1999 |
|---|---|---|
| Cash and equivalents: | | |
| Cash | $ 195 | $ 635 |
| Commercial paper | 2,771 | 3,805 |
| Certificates of deposit | 419 | 522 |
| Money market preferreds | 454 | 13 |
| Cash and equivalents | 3,839 | 4,975 |
| Short-term investments: | | |
| Commercial paper | 868 | 1,026 |
| U.S. government and agency securities | 3,511 | 3,592 |
| Corporate notes and bonds | 3,998 | 6,996 |
| Municipal securities | 1,361 | 247 |
| Certificates of deposit | 350 | 400 |
| Short-term investments | 10,088 | 12,261 |
| Cash and short-term investments | $13,927 | $17,236 |

## PROPERTY AND EQUIPMENT

| June 30 | 1998 | 1999 |
|---|---|---|
| Land | $ 183 | $ 158 |
| Buildings | 1,259 | 1,347 |
| Computer equipment | 1,182 | 1,433 |
| Other | 428 | 578 |
| Property and equipment – at cost | 3,052 | 3,516 |
| Accumulated depreciation | (1,547) | (1,905) |
| Property and equipment – net | $ 1,505 | $ 1,611 |

During 1997, 1998, and 1999, depreciation expense, of which the majority related to computer equipment, was $353 million, $528 million, and $483 million; disposals were not material.

NOTES continued (in millions)

## EQUITY AND OTHER INVESTMENTS

| June 30, 1999 | Cost Basis | Net Unrealized Gains | Recorded Basis |
|---|---|---|---|
| Debt securities recorded at market, maturing: | | | |
| Within one year | $ 682 | $ 8 | $ 690 |
| Between 10 and 15 years | 533 | (3) | 530 |
| Beyond 15 years (AT&T) | 4,731 | 347 | 5,078 |
| Debt securities recorded at market | 5,946 | 352 | 6,298 |
| Equity securities recorded at market: | | | |
| Comcast Corporation common stock | 500 | 1,394 | 1,894 |
| MCI Worldcom, Inc. common stock | 14 | 1,088 | 1,102 |
| Other | 849 | 1,102 | 1,951 |
| Unrealized hedge loss | – | (785) | (785) |
| Equity securities recorded at market | 1,363 | 2,799 | 4,162 |
| Equity securities and instruments recorded at cost: | | | |
| Nextel Communications, Inc. common stock | 600 | – | 600 |
| Comcast Corporation convertible preferred stock | 555 | – | 555 |
| NTL, Inc. convertible preferred stock | 511 | – | 511 |
| Other | 2,179 | – | 2,179 |
| Equity securities and instruments recorded at cost | 3,845 | – | 3,845 |
| Other investments | 67 | – | 67 |
| Equity and other investments | $11,221 | $3,151 | $14,372 |

Debt securities include corporate and government notes and bonds and derivative securities. Debt securities maturing beyond 15 years are composed entirely of AT&T 5% convertible preferred debt with a contractual maturity of 30 years. The debt is convertible into AT&T common stock on or after December 1, 2000, or may be redeemed by AT&T upon satisfaction of certain conditions on or after June 1, 2002. Unrealized gains on equity securities recorded at market were $1.4 billion on June 30, 1998. Equity securities and instruments recorded at cost include primarily preferred stock, common stock, and warrants that are restricted or not publicly traded. At June 30, 1998 and 1999, the estimated fair value of these investments was $2.4 billion and $6.1 billion, based on publicly available market information or other estimates determined by management. The Company hedges the risk of significant market declines on certain highly volatile equity securities with options. The options are recorded at market, consistent with the underlying equity securities. At June 30, 1999, the notional amount of the options outstanding was $2.1 billion; the fair value was $1.0 billion; and premiums paid for the options were not material. Realized gains and losses of equity and other investments in 1997 and 1998 were not material; realized gains were $623 million and losses were not material in 1999.

NOTES continued (in millions)

## INCOME TAXES

> The provision for income taxes consisted of:

| Year Ended June 30 | 1997 | 1998 | 1999 |
|---|---|---|---|
| Current taxes: | | | |
| U.S. and state | $1,710 | $2,518 | $4,027 |
| International | 412 | 526 | 281 |
| Current taxes | 2,122 | 3,044 | 4,308 |
| Deferred taxes | (262) | (417) | (202) |
| Provision for income taxes | $1,860 | $2,627 | $4,106 |

U.S. and international components of income before income taxes were:

| Year Ended June 30 | 1997 | 1998 | 1999 |
|---|---|---|---|
| U.S. | $3,775 | $5,072 | $10,649 |
| International | 1,539 | 2,045 | 1,242 |
| Income before income taxes | $5,314 | $7,117 | $11,891 |

The effective income tax rate was 35.0% in 1997 and increased to 36.9% in 1998 due to the non-deductible write-off of WebTV in-process technologies. In 1999, the effective tax rate was 35.0%, excluding the impact of the gain on the sale of Softimage, Inc. The components of the differences between the U.S. statutory tax rate and the Company's effective tax rate were not significant.

Income taxes payable were:

| June 30 | 1998 | 1999 |
|---|---|---|
| Deferred income tax assets: | | |
| Revenue items | $ 713 | $ 1,145 |
| Expense items | 613 | 648 |
| Deferred income tax assets | 1,326 | 1,793 |
| Deferred income tax liabilities: | | |
| Unrealized gain on investments | (479) | (1,046) |
| International earnings | (373) | (647) |
| Other | (26) | (16) |
| Deferred income tax liabilities | (878) | (1,709) |
| Current income tax liabilities | (1,363) | (1,691) |
| Income taxes payable | $ (915) | $(1,607) |

Income taxes have been settled with the Internal Revenue Service (IRS) for all years through 1989. The IRS has assessed taxes for 1990 and 1991, which the Company is contesting in U.S. Tax Court. The IRS is examining the Company's U.S. income tax returns for 1992 through 1994. Management believes any related adjustments that might be required will not be material to the financial statements. Income taxes paid were $1.1 billion in 1997, $1.1 billion in 1998, and $874 million in 1999.

NOTES continued (in millions)

## CONVERTIBLE PREFERRED STOCK

> During 1996, Microsoft issued 12.5 million shares of 2.75% convertible exchangeable principal-protected preferred stock. Dividends are payable quarterly in arrears. Preferred stockholders have preference over common stockholders in dividends and liquidation rights. In December 1999, each preferred share is convertible into common shares or an equivalent amount of cash determined by a formula that provides a floor price of $79.875 and a cap of $102.24 per preferred share, equivalent to $19.97 and $25.56 per common share. Net proceeds of $980 million were used to repurchase common shares.

## COMMON STOCK

> ISSUED AND OUTSTANDING Shares of common stock outstanding were as follows:

| Year Ended June 30 | 1997 | 1998 | 1999 |
|---|---|---|---|
| Balance, beginning of year | 4,776 | 4,816 | 4,940 |
| Issued | 188 | 202 | 213 |
| Repurchased | (148) | (78) | (44) |
| Balance, end of year | 4,816 | 4,940 | 5,109 |

> REPURCHASE PROGRAM The Company repurchases its common stock in the open market to provide shares for issuing to employees under stock option and stock purchase plans. The Company's Board of Directors authorized continuation of this program in 2000.

During 1998, the Company executed two forward settlement structured repurchase agreements with an independent third party totaling 42 million shares of stock and paid cash for a portion of the purchase price. In 1999, the Company settled the agreements by returning 28 million shares of stock, based upon the stock price on the date of settlement. The timing and method of settlement were at the discretion of the Company. The differential between the cash paid and the price of Microsoft common stock on the date of the agreement was originally reflected in common stock and paid-in capital.

## PUT WARRANTS

> To enhance its stock repurchase program, Microsoft sells put warrants to independent third parties. These put warrants entitle the holders to sell shares of Microsoft common stock to the Company on certain dates at specified prices. On June 30, 1999, 163 million warrants were outstanding with strike prices ranging from $59 to $65 per share. The put warrants expire between September 1999 and March 2002. The outstanding put warrants permit a net-share settlement at the Company's option and do not result in a put warrant liability on the balance sheet.

## EMPLOYEE STOCK AND SAVINGS PLANS

> EMPLOYEE STOCK PURCHASE PLAN The Company has an employee stock purchase plan for all eligible employees. Under the plan, shares of the Company's common stock may be purchased at six-month intervals at 85% of the lower of the fair market value on the first or the last day of each six-month period. Employees may purchase shares having a value not exceeding 10% of their gross compensation during an offering period. During 1997, 1998, and 1999, employees purchased

NOTES continued (in millions, except per share amounts)

5.6 million, 4.4 million, and 2.7 million shares at average prices of $14.91, $27.21, and $52.59 per share. At June 30, 1999, 70.9 million shares were reserved for future issuance.

> SAVINGS PLAN The Company has a savings plan, which qualifies under Section 401(k) of the Internal Revenue Code. Participating employees may contribute up to 15% of their pretax salary, but not more than statutory limits. The Company contributes fifty cents for each dollar a participant contributes, with a maximum contribution of 3% of a participant's earnings. Matching contributions were $28 million, $39 million, and $49 million in 1997, 1998, and 1999.

> STOCK OPTION PLANS The Company has stock option plans for directors, officers, and employees, which provide for nonqualified and incentive stock options. Options granted prior to 1995 generally vest over four and one-half years and expire 10 years from the date of grant. Options granted during and after 1995 generally vest over four and one-half years and expire seven years from the date of grant, while certain options vest over seven and one-half years and expire after 10 years. At June 30, 1999, options for 406 million shares were vested and 998 million shares were available for future grants under the plans.

Stock options outstanding were as follows:

| | | Price per Share | |
|---|---|---|---|
| | Shares | Range | Weighted Average |
| Balance, June 30, 1996 | 952 | $ 0.28 - $14.74 | $ 5.52 |
| Granted | 220 | 13.83 - 29.80 | 14.58 |
| Exercised | (180) | 0.28 - 14.74 | 3.32 |
| Canceled | (36) | 4.25 - 24.29 | 9.71 |
| Balance, June 30, 1997 | 956 | 0.56 - 29.80 | 7.86 |
| Granted | 138 | 16.56 - 43.63 | 31.28 |
| Exercised | (176) | 0.56 - 31.24 | 4.64 |
| Canceled | (25) | 4.25 - 41.94 | 14.69 |
| Balance, June 30, 1998 | 893 | 0.56 - 43.63 | 11.94 |
| Granted | **78** | **45.59 - 83.28** | **54.62** |
| Exercised | **(175)** | **0.56 - 53.63** | **6.29** |
| Canceled | **(30)** | **4.25 - 74.28** | **21.06** |
| Balance, June 30, 1999 | **766** | **0.56 - 83.28** | **17.28** |

For various price ranges, weighted average characteristics of outstanding stock options at June 30, 1999 were as follows:

| | Outstanding Options | | | Exercisable Options | |
|---|---|---|---|---|---|
| Range of Exercise Prices | Shares | Remaining Life (Years) | Weighted Average Price | Shares | Weighted Average Price |
| **$ 0.56 - $ 5.97** | **242** | **2.9** | **$ 4.31** | **230** | **$ 4.24** |
| **5.98 - 13.62** | **158** | **3.9** | **10.85** | **89** | **10.62** |
| **13.63 - 29.80** | **173** | **4.7** | **14.92** | **66** | **14.67** |
| **29.81 - 43.62** | **117** | **5.5** | **32.06** | **21** | **31.83** |
| **43.63 - 83.28** | **76** | **6.2** | **55.04** | **-** | **-** |

NOTES continued (in millions, except per share amounts)

The Company follows Accounting Principles Board Opinion 25, *Accounting for Stock Issued to Employees*, to account for stock option and employee stock purchase plans. Historically, exercise prices of grants of ESOs were struck at the lowest price in the 30 days following July 1 for annual grants and the 30 days after the start date for new employees. In connection with this practice, which is no longer employed, a charge of $217 million was recorded in the fourth quarter for fiscal 1999 compensation expense.

An alternative method of accounting for stock options is SFAS 123, *Accounting for Stock-Based Compensation*. Under SFAS 123, employee stock options are valued at grant date using the Black-Scholes valuation model, and compensation cost is recognized ratably over the vesting period. Had compensation cost for the Company's stock option and employee stock purchase plans been determined based on the Black-Scholes value at the grant dates for awards, pro forma income statements for 1997, 1998, and 1999 would have been as follows:

| Year Ended June 30 | 1997 | | 1998 | | 1999 | |
|---|---|---|---|---|---|---|
| | Reported | Pro forma | Reported | Pro forma | Reported | Pro forma |
| Revenue | $11,936 | $11,936 | $15,262 | $15,262 | $19,747 | $19,747 |
| Operating expenses: | | | | | | |
| Cost of revenue | 2,170 | 2,290 | 2,460 | 2,628 | 2,814 | 3,024 |
| Research and development | 1,863 | 2,168 | 2,601 | 3,023 | 2,970 | 3,504 |
| Acquired in-process technology | – | – | 296 | 296 | – | – |
| Sales and marketing | 2,411 | 2,539 | 2,828 | 3,003 | 3,231 | 3,448 |
| General and administrative | 362 | 424 | 433 | 520 | 689 | 822 |
| Other expenses | 259 | 259 | 230 | 230 | 115 | 115 |
| Total operating expenses | 7,065 | 7,680 | 8,848 | 9,700 | 9,819 | 10,913 |
| Operating income | 4,871 | 4,256 | 6,414 | 5,562 | 9,928 | 8,834 |
| Investment income | 443 | 443 | 703 | 703 | 1,803 | 1,803 |
| Gain on sale of Softimage, Inc. | – | – | – | – | 160 | 160 |
| Income before income taxes | 5,314 | 4,699 | 7,117 | 6,265 | 11,891 | 10,797 |
| Provision for income taxes | 1,860 | 1,646 | 2,627 | 2,325 | 4,106 | 3,723 |
| Net income | 3,454 | 3,053 | 4,490 | 3,940 | 7,785 | 7,074 |
| Preferred stock dividends | 15 | 15 | 28 | 28 | 28 | 28 |
| Net income available for common shareholders | $ 3,439 | $ 3,038 | $ 4,462 | $ 3,912 | $ 7,757 | $ 7,046 |
| Diluted earnings per share | $ 0.66 | $ 0.58 | $ 0.84 | $ 0.73 | $ 1.42 | $ 1.29 |

The pro forma disclosures in the previous table include the amortization of the fair value of all options vested during 1997, 1998, and 1999, regardless of the grant date. If only options granted after 1996 were valued, as prescribed by SFAS 123, pro forma net income would have been $3,179 million, $4,019 million, and $7,109 million, and earnings per share would have been $0.61, $0.75, and $1.30 for 1997, 1998, and 1999.

The weighted average Black-Scholes value of options granted under the stock option plans during 1997, 1998, and 1999 was $5.86, $11.81, and $20.90. Value was estimated using an expected life of five years, no dividends, volatility of .32 in 1999 and 1998 and .30 in 1997, and risk-free interest rates of 6.5%, 5.7%, and 4.9% in 1997, 1998, and 1999.

NOTES continued (in millions, except per share amounts)

## EARNINGS PER SHARE

> Basic earnings per share is computed on the basis of the weighted average number of common shares outstanding. Diluted earnings per share is computed on the basis of the weighted average number of common shares outstanding plus the effect of outstanding preferred shares using the "if-converted" method, assumed net-share settlement of common stock structured repurchases, and outstanding stock options using the "treasury stock" method.

The components of basic and diluted earnings per share were as follows:

| Year Ended June 30 | 1997 | 1998 | 1999 |
|---|---|---|---|
| Net income | $3,454 | $4,490 | $7,785 |
| Preferred stock dividends | 15 | 28 | 28 |
| Net income available for common shareholders | $3,439 | $4,462 | $7,757 |
| Weighted average outstanding shares of common stock | 4,782 | 4,864 | 5,028 |
| Dilutive effect of: | | | |
| Common stock under structured repurchases | – | 6 | 13 |
| Preferred stock | 26 | 34 | 16 |
| Employee stock options | 436 | 458 | 425 |
| Common stock and common stock equivalents | 5,244 | 5,362 | 5,482 |
| Earnings per share: | | | |
| Basic | $ 0.72 | $ 0.92 | $ 1.54 |
| Diluted | $ 0.66 | $ 0.84 | $ 1.42 |

## OPERATIONAL TRANSACTIONS

> In August 1997, Microsoft acquired WebTV Networks, Inc., an online service that enables consumers to experience the Internet through their televisions via set-top terminals based on proprietary technologies. A director of the Company owned 10% of WebTV. Microsoft paid $425 million in stock and cash for WebTV. The Company recorded an in-process technologies write-off of $296 million in the first quarter of fiscal 1998.

In August 1998, the Company sold a wholly-owned subsidiary, Softimage, Inc. to Avid Technology, Inc. and recorded a pretax gain of $160 million. As part of a transitional service agreement, Microsoft agreed to make certain development tools and management systems available to Avid for use in the Softimage, Inc. business.

In November 1998, Microsoft acquired LinkExchange, Inc., a leading provider of online marketing services to Web site owners and small and medium-sized businesses. Microsoft paid $265 million in stock. During fiscal 1999, Microsoft also acquired several other entities primarily providing online technologies and services. The Company did not record significant in-process technology write-offs in connection with these transactions.

In July 1999, Ticketmaster Online CitySearch, Inc. agreed to purchase certain online properties of Sidewalk in exchange for stock and warrants at a price to be determined upon closing.

NOTES continued

## COMMITMENTS

> The Company has operating leases for most U.S. and international sales and support offices and certain equipment. Rental expense for operating leases was $92 million, $95 million, and $135 million in 1997, 1998, and 1999. Future minimum rental commitments under noncancelable leases, in millions of dollars, are: 2000, $133; 2001, $121; 2002, $97; 2003, $83; 2004, $75; and thereafter, $194.

In connection with the Company's communications infrastructure and the operation of online services, Microsoft has certain communication usage commitments. Future related minimum commitments, in millions of dollars, are: 2000, $125 and 2001, $22. Also, Microsoft has committed to certain volumes of outsourced telephone support and manufacturing of packaged product and has committed $275 million for constructing new buildings.

During 1996, Microsoft and National Broadcasting Company (NBC) established two MSNBC joint ventures: a 24-hour cable news and information channel and an interactive online news service. Microsoft agreed to pay $220 million over a five-year period for its interest in the cable venture, to pay one-half of operational funding of both joint ventures for a multiyear period, and to guarantee a portion of MSNBC debt.

## CONTINGENCIES

> On October 7, 1997, Sun Microsystems, Inc. brought suit against Microsoft in the U.S. District Court for the Northern District of California. Sun's complaint alleges several claims against Microsoft, all related to the parties' relationship under a March 11, 1996 Technology License and Distribution Agreement (Agreement) concerning certain Java programming language technology. The Complaint seeks: a preliminary and permanent injunction against Microsoft distributing certain products with the Java Compatibility logo, and against distributing Internet Explorer 4.0 browser technology unless certain alleged obligations are met; an order compelling Microsoft to perform certain alleged obligations; an accounting; termination of the Agreement; and an award of damages, including compensatory, exemplary, and punitive damages, and liquidated damages of $35 million for the alleged source code disclosure.

On March 24, 1998, the court entered an order enjoining Microsoft from using the Java Compatibility logo on Internet Explorer 4.0 and the Microsoft Software Developers Kit (SDK) for Java 2.0. Microsoft has taken steps to fully comply with the order.

On November 17, 1998, the court entered an order granting Sun's request for a preliminary injunction, holding that Sun had established a likelihood of success on its copyright infringement claims, because Microsoft's use of Sun's technology in its products was beyond the scope of the parties' license agreement. The court ordered Microsoft to make certain changes in its products that include Sun's Java technology and to make certain changes in its Java software development tools. The court also enjoined Microsoft from entering into any licensing agreements that were conditioned on exclusive use of Microsoft's Java Virtual Machine. Microsoft appealed that ruling to the 9th Circuit on December 16, 1998. Oral argument on that appeal was held on June 16, 1999. In the interim, Microsoft is complying with the ruling and has not sought a stay of the injunction pending appeal. On December 18, 1998, Microsoft filed a motion requesting an extension of the 90-day compliance period for certain Microsoft products, which was granted in part in January 1999. Microsoft filed a motion on February 5, 1999, seeking clarification of the court's order that Microsoft would not be prevented from engaging in independent development of Java technology under the order. The court granted that motion. On July 23, 1999 the court also granted Microsoft's motion to increase the bond on the preliminary injunction from $15 million to $35 million.

NOTES continued

On January 22, 1999, Microsoft and Sun filed a series of summary judgment motions regarding the interpretation of the contract and other issues. On May 20, 1999, the court issued tentative rulings on three of the motions. In the preliminary rulings, the court (1) granted Sun's motion for summary judgment that prior versions of Internet Explorer 4.0, Windows 98, Windows NT, Visual J++® 6.0 development system, and the SDK for Java infringe Sun's copyrights, because they contain Sun's program code but do not pass Sun's compatibility tests and, therefore, Microsoft's use of Sun's technology is outside the scope of the Agreement and unlicensed; (2) granted Microsoft's motion that the Agreement authorizes Microsoft to distribute independently developed Java technology that is not subject to the compatibility obligations in the Agreement; and (3) denied Sun's motion for summary judgment on the meaning of certain provisions of the Agreement, tentatively adopting Microsoft's interpretation that Sun is required to deliver certain new Java technology, called "Supplemental Java Classes," in working order on Microsoft's then existing and commercially distributed virtual machine. On June 24, 1999, the court heard oral argument on the three tentative rulings. No final orders have been issued. At the hearing, the court also directed the parties to identify other pending summary judgment motions that the court should next consider. There are no other hearing or trial dates set.

On May 18, 1998, the Antitrust Division of the U.S. Department of Justice (DOJ) and a group of 20 state Attorneys General filed two antitrust cases against Microsoft in the U.S. District Court for the District of Columbia. The DOJ complaint alleges violations of Sections 1 and 2 of the Sherman Act. The DOJ complaint seeks declaratory relief as to the violations it asserts and preliminary and permanent injunctive relief regarding: the inclusion of Internet browsing software (or other software products) as part of Windows; the terms of agreements regarding non-Microsoft Internet browsing software (or other software products); taking or threatening "action adverse" in consequence of a person's failure to license or distribute Microsoft Internet browsing software (or other software product) or distributing competing products or cooperating with the government; and restrictions on the screens, boot-up sequence, or functions of Microsoft's operating system products. The state Attorneys General allege largely the same claims and various pendent state claims. The states seek declaratory relief and preliminary and permanent injunctive relief similar to that sought by the DOJ, together with statutory penalties under the state law claims. The foregoing description is qualified in its entirety by reference to the full text of the complaints and other papers on file in those actions, case numbers 98-1232 and 98-1233.

On May 22, 1998, Judge Jackson consolidated the two actions. The judge granted Microsoft's motion for summary judgment as to the states' monopoly leverage claim and permitted the remaining claims to proceed to trial. Trial began on October 19, 1998. Microsoft believes the claims are without merit and is defending against them vigorously. In other ongoing investigations, the DOJ and several state Attorneys General have requested information from Microsoft concerning various issues.

Caldera, Inc. filed a lawsuit against Microsoft in July 1996. It alleges Sherman Act violations relating to Microsoft licensing practices of the MS-DOS® operating system and Windows in the late 80s and early 90s — essentially the same complaints that resulted in the 1994 DOJ consent decree. Caldera claims to own the rights of Novell, Inc. and Digital Research, Inc. relating to DR-DOS and Novell DOS products. It also asserts a claim that Windows 95 is a technological tie of Windows and MS-DOS. Trial is scheduled for January 2000. Some partial summary judgment motions are pending. Microsoft believes the claims are without merit and is vigorously defending the case.

The Securities and Exchange Commission is conducting a non-public investigation into the Company's accounting reserve practices. Microsoft is also subject to various legal proceedings and claims that arise in the ordinary course of business.

Management currently believes that resolving these matters will not have a material adverse impact on the Company's financial position or its results of operations.

NOTES continued (in millions)

## SEGMENT INFORMATION

| Year Ended June 30 | Windows Platforms | Productivity Applications and Developer | Consumer, Commerce, and Other | Reconciling Amounts | Consolidated |
|---|---|---|---|---|---|
| 1997 | | | | | |
| Revenue | $5,213 | $5,992 | $ 1,129 | $ (398) | $11,936 |
| 1998 | | | | | |
| Revenue | $6,236 | $7,458 | $ 1,765 | $ (197) | $15,262 |
| Operating income | 3,661 | 4,824 | (1,050) | (1,021) | 6,414 |
| 1999 | | | | | |
| Revenue | $8,590 | $8,686 | $ 1,784 | $ 687 | $19,747 |
| Operating income | 6,007 | 5,568 | (1,072) | (575) | 9,928 |

The Company's organizational structure and fundamental approach to business reflect the needs of its customers. As such, Microsoft has three major segments: Windows Platforms; Productivity Applications and Developer; and Consumer, Commerce, and Other. Windows Platforms includes the Business and Enterprise Division, which is primarily responsible for Windows NT and developing Windows 2000. Windows Platforms also includes the Consumer Windows Division, which oversees Windows 98 and Windows 95. Productivity Applications and Developer includes the Business Productivity Division, which is responsible for developing and marketing desktop applications, server applications, and developer tools. Consumer, Commerce, and Other products and services include primarily learning, entertainment, and PC input device products; WebTV and PC online access; and portal and other Internet services. Assets of the segment groups are not relevant for management of the businesses nor for disclosure. In addition, it is not practicable to discern operating income for 1997 for the above segments due to previous internal reorganizations.

Segment information is presented in accordance with SFAS 131, *Disclosures about Segments of an Enterprise and Related Information*. This standard is based on a management approach, which requires segmentation based upon the Company's internal organization and disclosure of revenue and operating income based upon internal accounting methods. The Company's financial reporting systems present various data for management to run the business, including profit and loss statements (P&Ls) prepared on a basis not consistent with generally accepted accounting principles. Reconciling items include certain elements of unearned revenue, the treatment of certain channel inventory amounts and estimates, and revenue from product support, consulting, and training and certification of system integrators. Additionally, the internal P&Ls use accelerated methods of depreciation and amortization, but do not reflect the charge for the ESO exercise price methodology previously employed by the Company.

Revenue attributable to U.S. operations includes shipments to customers in the United States, licensing to OEMs and certain multinational organizations, and exports of finished goods primarily to Asia, Latin America, and Canada. Revenue from U.S. operations totaled $7.8 billion, $10.1 billion, and $13.7 billion in 1997, 1998, and 1999. Revenue from outside the United States, excluding licensing to OEMs and certain multinational organizations and U.S. exports, totaled $4.1 billion, $5.2 billion, and $6.0 billion in 1997, 1998, and 1999.

Long-lived assets totaled $1.2 billion and $1.5 billion in the United States in 1998 and 1999 and $287 million and $154 million in other countries in 1998 and 1999.

QUARTERLY INFORMATION (in millions, except per share amounts, unaudited)

| | Quarter Ended | | | | |
|---|---|---|---|---|---|
| | Sept. 30 | Dec. 31 | Mar. 31 | June 30 | Year |
| 1997 | | | | | |
| Revenue | $2,405 | $2,808 | $3,365 | $3,358 | $11,936 |
| Gross profit | 1,923 | 2,250 | 2,782 | 2,811 | 9,766 |
| Net income | 614 | 741 | 1,042 | 1,057 | 3,454 |
| Basic earnings per share | 0.13 | 0.15 | 0.22 | 0.22 | 0.72 |
| Diluted earnings per share | 0.12 | 0.14 | 0.20 | 0.20 | 0.66 |
| Common stock price per share: | | | | | |
| High | 17.33 | 21.54 | 25.88 | 33.74 | 33.74 |
| Low | 13.44 | 16.36 | 20.19 | 22.44 | 13.44 |
| 1998 | | | | | |
| Revenue | $3,334 | $3,792 | $3,984 | $4,152 | $15,262 |
| Gross profit | 2,800 | 3,179 | 3,344 | 3,479 | 12,802 |
| Net income | 663 | 1,133 | 1,337 | 1,357 | 4,490 |
| Basic earnings per share | 0.14 | 0.24 | 0.27 | 0.27 | 0.92 |
| Diluted earnings per share | 0.13 | 0.21 | 0.25 | 0.25 | 0.84 |
| Common stock price per share: | | | | | |
| High | 37.69 | 36.66 | 45.47 | 54.28 | 54.28 |
| Low | 30.82 | 29.50 | 31.10 | 40.94 | 29.50 |
| **1999** | | | | | |
| **Revenue** | **$4,193** | **$5,195** | **$4,595** | **$5,764** | **$19,747** |
| **Gross profit** | **3,544** | **4,407** | **3,887** | **5,095** | **16,933** |
| **Net income** | **1,683** | **1,983** | **1,917** | **2,202** | **7,785** |
| **Basic earnings per share** | **0.34** | **0.40** | **0.38** | **0.43** | **1.54** |
| **Diluted earnings per share** | **0.31** | **0.36** | **0.35** | **0.40** | **1.42** |
| Common stock price per share: | | | | | |
| **High** | **59.81** | **72.00** | **94.63** | **95.63** | **95.63** |
| **Low** | **47.25** | **48.13** | **68.00** | **75.50** | **47.25** |

The Company's common stock is traded on The Nasdaq Stock Market under the symbol MSFT. On July 31, 1999, there were 92,169 registered holders of record of the Company's common stock. The Company has not paid cash dividends on its common stock.

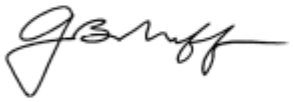
## REPORTS OF MANAGEMENT AND INDEPENDENT AUDITORS

Management is responsible for preparing the Company's financial statements and the other information that appears in this annual report. Management believes that the financial statements fairly reflect the form and substance of transactions and reasonably present the Company's financial condition and results of operations in conformity with generally accepted accounting principles. Management has included in the Company's financial statements amounts that are based on estimates and judgments, which it believes are reasonable under the circumstances.

The Company maintains a system of internal accounting policies, procedures, and controls intended to provide reasonable assurance, at appropriate cost, that transactions are executed in accordance with Company authorization and are properly recorded and reported in the financial statements, and that assets are adequately safeguarded.

Deloitte & Touche LLP audits the Company's financial statements in accordance with generally accepted auditing standards and provides an objective, independent review of the Company's internal controls and the fairness of its reported financial condition and results of operations.

The Microsoft Board of Directors has an Audit Committee composed of nonmanagement Directors. The Committee meets with financial management, internal auditors, and the independent auditors to review internal accounting controls and accounting, auditing, and financial reporting matters.



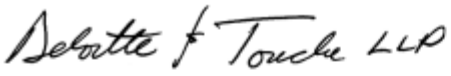
Gregory B. Maffei
Senior Vice President, Finance and Administration; Chief Financial Officer

To the Board of Directors and Stockholders of Microsoft Corporation:

We have audited the accompanying balance sheets of Microsoft Corporation and subsidiaries as of June 30, 1998 and 1999, and the related statements of income, cash flows, and stockholders' equity for each of the three years ended June 30, 1999, appearing on pages 17 and 27 through 42. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such financial statements present fairly, in all material respects, the financial position of Microsoft Corporation and subsidiaries as of June 30, 1998 and 1999, and the results of their operations and their cash flows for each of the three years ended June 30, 1999 in conformity with generally accepted accounting principles.



Deloitte & Touche LLP
Seattle, Washington
July 19, 1999

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August Capital and
Technology Venture Investors

Wm. G. Reed, Jr.
Chairman of the Board,
Simpson Investment
Company (retired)

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Chief Operating Officer,
Microsoft Corporation
(retired)

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Chief Operating Officer

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Group Vice President
(on leave)

Paul A. Maritz
Group Vice President,
Developer

Jeffrey S. Raikes
Group Vice President,
Sales and Support

James E. Allchin
Senior Vice President,
Platforms

Orlando Ayala Lozano
Senior Vice President,
South Pacific and Americas

Joachim Kempin
Senior Vice President,
OEM Sales

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Senior Vice President;
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Europe, Middle East,
and Africa

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Business Productivity

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Senior Vice President,
Consumer Strategy

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Law and Corporate
Affairs; Secretary

Bernard P. Vergnes
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Chairman, Microsoft
Europe, Middle East,
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and Africa

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