PEARSON ALWAYS LEARNING

Sheridan Titman • Arthur J. Keown • John D. Martin

Financial Management
Principles and Applications

Custom Edition for Texas Tech University

Taken from:
Financial Management: Principles & Applications, Eleventh Edition
by Sheridan Titman, Arthur J. Keown, and John D. Martin

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Principles P 1, P 2, P 3, and P 4 Applied

This book examines a wide range of financial decisions that people make in their business lives as well as in their personal lives. In this chapter, we lay a foundation for the entire book by describing the boundaries of the study of finance, the different ways that businesses are organized, and the role that the financial manager plays within the firm. We also address some of the ethical dilemmas that the financial manager must face daily. Finally, we take an in-depth look at the four principles of finance, P Principle 1: **Money Has a Time Value**, P Principle 2: **There Is a Risk-Return Tradeoff**, P Principle 3: **Cash Flows Are the Source of Value**, and P Principle 4: **Market Prices Reflect Information**, that underlie all financial decisions.

On any given day, Apple, Inc. (AAPL) will sell thousands of 3G iPhones, iPods, iPads and personal computers. In addition to a myriad of production and pricing decisions, Apple must evaluate potential new products, make personnel choices, and consider new locations for Apple retail stores. Since each of these decisions affects the risk, timing, and the amount of cash generated by Apple's operations, we can view all of them as financial decisions.

Like Apple, you also face financial decisions in your personal life. Whether evaluating the terms of credit card offers or weighing whether to go to graduate school right after graduation or to work full-time for a year or two, you will find that the same fundamental principles that guide business decisions are useful to you in making personal financial decisions.

Regardless of Your Major...

"Welcome to the World of Finance"

For the rest of your life, you will be both working and living in a world where you will be making choices that have financial consequences. Corporations make money by introducing new products, opening new sales outlets, hiring the best people, and improving their productivity. All of these actions involve investing or spending money today with the hope of generating more money in the future. Regardless of your major, after graduation you are likely to be working for an organization where your choices have uncertain costs and benefits, both now and in the future. This will be the case if you are working for a major corporation such as GE, starting your own firm, or working for a non-profit organization such as St. Jude Children's Research Hospital. Moreover, you will be faced with a variety of personal choices—whether you can afford a new car or a mortgage or how much to begin investing in a retirement fund—that also require you to evaluate alternatives that involve uncertain future payoffs. Regardless of your major, there is simply no getting around the fact that you will be making financial choices throughout your life.

Your Turn: See Study Question 1–1.

1.1 Finance: An Overview

To begin our study of business finance, we present an overview of the field and define the types of decisions addressed by the study of business finance. We also discuss the motivation for studying finance and briefly introduce the four principles of finance.

What Is Finance?

Finance is the study of how people and businesses evaluate investments and raise capital to fund them. Our interpretation of an investment is quite broad. When Google (GOOG) designed its G1 Cell Phone, it was clearly making a long-term investment. The firm had to devote considerable expense to designing, producing, and marketing the cell phone with the hope that it would eventually capture a sufficient amount of market share from the iPhone to make the investment worthwhile. But Google also makes an investment decision whenever it hires a fresh new graduate, knowing that it will be paying a salary for at least six months before the employee will have much to contribute.

Thus, there are three basic questions that are addressed by the study of finance:

1. **What long-term investments should the firm undertake?** This area of finance is generally referred to as **capital budgeting**.
2. **How should the firm raise money to fund these investments?** The firm's funding choices are generally referred to as **capital structure** decisions.
3. **How can the firm best manage its cash flows as they arise in its day-to-day operations?** This area of finance is generally referred to as **working capital management**.

We'll be looking at each of these three areas of business finance—capital budgeting, capital structure, and working capital management—in the chapters ahead.

Why Study Finance?

Even if you are not planning a career in finance, a working knowledge of finance will take you far in both your personal and professional life.

Those interested in management will need to study topics such as strategic planning, personnel, organizational behavior, and human relations, all of which involve spending money today in the hopes of generating more money in the future. For example, GM made a strategic decision to introduce an electric car and invest $740 million to produce the Chevy Volt, a de-

cision designed to generate momentum for the company as it came out of bankruptcy reorganization in July of 2009. Similarly, marketing majors need to understand and decide how aggressively to price products and how much to spend on advertising those products. Since aggressive marketing costs money today, but generates rewards in the future, it should be viewed as an investment that the firm needs to finance. Production and operations management majors need to understand how best to manage a firm's production and control its inventory and supply chain. These are all topics that involve risky choices that relate to the management of money over time, which is the central focus of finance.

While finance is primarily about the management of money, a key component of finance is the management and interpretation of information. Indeed, if you pursue a career in management information systems or accounting, the finance managers are likely to be your most important clients.

For the student with entrepreneurial aspirations, an understanding of finance is essential—after all, if you can't manage your finances, you won't be in business very long.

Finally, an understanding of finance is important to you as an individual. The fact that you are reading this book indicates that you understand the importance of investing in yourself. By obtaining a college degree, you are clearly making sacrifices in the hopes of making yourself more employable and improving your chances of having a rewarding and challenging career. Some of you are relying on your own earnings and the earnings of your parents to finance your education, whereas others are raising money or borrowing it from the **financial markets**, institutions that facilitate financial transactions.

Financial decisions are everywhere, both in your personal life and in your career. Although the primary focus of this book is on developing the corporate finance tools and techniques that are used in the business world, you will find that much of the logic and many of the tools we develop and explore along the way will also apply to decisions you will be making in your own personal life. In the future, both your business and personal life will be spent in the world of finance. Since you're going to be living in that world, it's time to learn about its basic principles.

We will take an in-depth look at these principles at the end of this chapter. As you will see, you do not need an extensive knowledge of finance to understand these principles; and, once you know and understand them, they will help you understand the rest of the concepts presented in this book. When you are looking at more complex financial concepts, think of these principles as taking you back to the roots of finance.

Before you move on to 1.2

Concept Check | 1.1

1. What are the three basic types of issues that arise in business that are addressed by the study of business finance?
2. List three non-finance careers to which the study of finance applies.

1.2 Three Types of Business Organizations

Although numerous and diverse, the legal forms of business organization fall into three categories: the sole proprietorship, the partnership, and the corporation. Figure 1.1 provides a quick reference guide for organizational forms.

Sole Proprietorship

The **sole proprietorship** is a business owned by a single individual who is entitled to all the firm's profits and who is also responsible for all the firm's **debt**, that is, what the firm owes. In effect, there is no separation between the business and the owner when it comes to debts or being sued. If a sole proprietor is sued, he or she can lose not only all they invested in the proprietorship, but also all their personal assets. Sole proprietorships are often used in the initial

Figure 1.1

Characteristics of Different Forms of Business

Business Form	Number of Owners	Are Owners Liable for the Firm's Debts?	Do Owners Manage the Firm?	Does an Ownership Change Dissolve the Firm?	Access to Capital	Taxation
Sole Proprietorship	One	Yes	Yes	Yes	Very limited	Personal Taxes
Partnership	Unlimited	Yes; each partner has unlimited liability	Yes	Yes	Very limited	Personal Taxes
Limited Partnership (with General Partners (GPs) and Limited Partners (LPs))	At least one GP, but no limit on LPs	GPs—unlimited liability LPs—limited liability	GPs—manage the firm LPs—no role in management	GPs—Yes LPs—No, can change[1]	Limited	Personal Taxes
Limited Liability Company	Unlimited	No	Yes	No	Dependent upon size	Personal Taxes
Corporation	Unlimited	No	No—although managers generally have an ownership stake[2]	No	Very easy access	Double Taxation: Earnings taxed at corporate level Dividends taxed at personal level

[1]It is common for LLCs to require approval from the other partners before a partner's ownership can be transferred.

[2]Owners are not prohibited from managing the corporation.

>> END FIGURE 1.1

stages of a firm's life. This in part is because forming a sole proprietorship is very easy; there are no forms to file and no partners to consult—the founder of the business is the sole owner. However, these organizations typically have limited access to outside sources of financing. The owners of a sole proprietorship typically raise money by investing their own funds and by borrowing from a bank. However, since there is no difference between the sole proprietor and the business he or she runs, there is no difference between personal borrowing and business borrowing. The owner of the business is personally liable for the debts of that business. In addition to banks, personal loans from friends and family are important sources of financing.

Partnership

A **general partnership** is an association of two or more persons who come together as co-owners for the purpose of operating a business for profit. Just as with the sole proprietorship, there is no separation between the general partnership and its owners with respect to debts or being sued. Its primary point of distinction from a sole proprietorship is that the **partnership** has more than one owner. The profits of the partnership are taxed to the partners as personal income. An important advantage of the partnership is that it provides access to **equity**, or ownership, as well as financing from multiple owners in return for partnership **shares**, or units of ownership.

In **limited partnerships**, there are two classes of partners: general and limited. The **general partner** actually runs the business and faces unlimited liability for the firm's debts, while the **limited partner** is only liable up to the amount the limited partner invested. The life of the partnership, like the sole proprietorship, is tied to the life of the general partner. In addition, it is difficult to transfer ownership of the general partner's interest in the business—this generally requires the formation of a new partnership. However, the limited partner's shares

can be transferred to another owner without the need to dissolve the partnership, although finding a buyer may be difficult.

Corporation

If very large sums of money are needed to build a business, then the typical organizational form chosen is the **corporation**. As early as 1819, U.S. Supreme Court Chief Justice John Marshall set forth the legal definition of a corporation as "an artificial being, invisible, intangible, and existing only in the contemplation of law."[1] The corporation legally functions separately and apart from its owners (the **shareholders**, also referred to as the **stockholders**). As such, the corporation can individually sue and be sued, purchase, sell, or own property, and its personnel are subject to criminal punishment for crimes committed in the name of the corporation.

There are three primary advantages of this separate legal status. First, the owners' liability is confined to the amount of their investment in the company. In other words, if the corporation goes under, the owners can only lose their investment. This is an extremely important advantage of a corporation. After all, would you be willing to invest in USAir if you would be held liable if one of its planes crashed? The second advantage of separate legal status for the corporation is that the life of the business is not tied to the status of the investors. The death or withdrawal of an investor does not affect the continuity of the corporation. The management continues to run the corporation when the ownership shares are sold or when they are passed on through inheritance. For example, the inventor Thomas Edison founded General Electric (GE) over a century ago. Edison died in 1931, but the corporation lives on. Finally, these two advantages result in a third advantage, the ease of raising capital. It is much easier to convince investors to put their money in a corporation knowing that the most they can lose is what they invest, and that they can easily sell their stock if they so wish.

The corporation is legally owned by its current set of stockholders, or owners, who elect a board of directors. The directors then appoint management who are responsible for determining the firm's direction and policies. Although even very small firms can be organized as corporations, most often larger firms that need to raise large sums of money for investment and expansion use this organizational form. As such, this is the legal form of business that we will be examining most frequently in this textbook.

One of the drawbacks of the corporate form is the double taxation of earnings that are paid out in the form of **dividends**. When a corporation earns a profit, it pays taxes on that profit (the first taxation of earnings) and pays some of that profit back to the shareholders in the form of dividends. Then the shareholders pay personal income taxes on those dividends (the second taxation of earnings). In contrast, the earnings of proprietorships and partnerships are not subject to double taxation. Needless to say, this is a major disadvantage of corporations.[2]

When entrepreneurs and small business owners want to expand, they face a tradeoff between the benefits of the corporate form and the potential loss of control and higher taxes that accompany it. For this reason, an attractive alternative to the corporation for such a small business is the **limited liability company (LLC)**, a cross between a partnership and a corporation. An LLC combines the tax benefits of a partnership (no double taxation of earnings) with the limited liability benefit of a corporation (the owners' liability is limited to what they invested).[3] Thus, unlike a proprietorship or partnership, there is a separation between the LLC and the owners with respect to debts or being sued. As a result, the most a limited partner can lose is what he or she invested. Since LLCs operate under state laws, both the states and the IRS have

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[1] *The Trustees of Dartmouth College v. Woodward,* 4 Wheaton 636 (1819).

[2] Before the 2003 tax law changes, you paid your regular tax rate on dividend income, which could be as high as 35 percent. However, since the 2003 tax law, qualified dividends from domestic corporations and qualified foreign corporations were taxed at a maximum rate of 15 percent. Moreover, if you're in the 10 percent or 15 percent rate brackets, your tax rate on these dividends drops to 0 percent. However, unless Congress takes further action, this tax break on dividends will end after 2010 and individuals will once again be taxed at their regular personal tax rate.

[3] In addition, there is the S-type Corporation, which provides limited liability while allowing the business owners to be taxed as if they were a partnership—that is, distributions back to the owners are not taxed twice as is the case with dividends in the standard corporate form. Unfortunately, a number of restrictions that accompany the S-type corporation detract from the desirability of this business form. As a result, this business form has been losing ground in recent years in favor of the limited liability company.

rules for what qualifies as an LLC, and different states have different rules. The bottom line is that if an LLC looks too much like a corporation, it will be taxed as one.

Figure 1.1 describes some major characteristics of the different forms of business. As you can see, the corporation is the business form that provides the easiest access to capital, and as such it is the most common choice for firms that are growing and need to raise money.

How Does Finance Fit into the Firm's Organizational Structure?

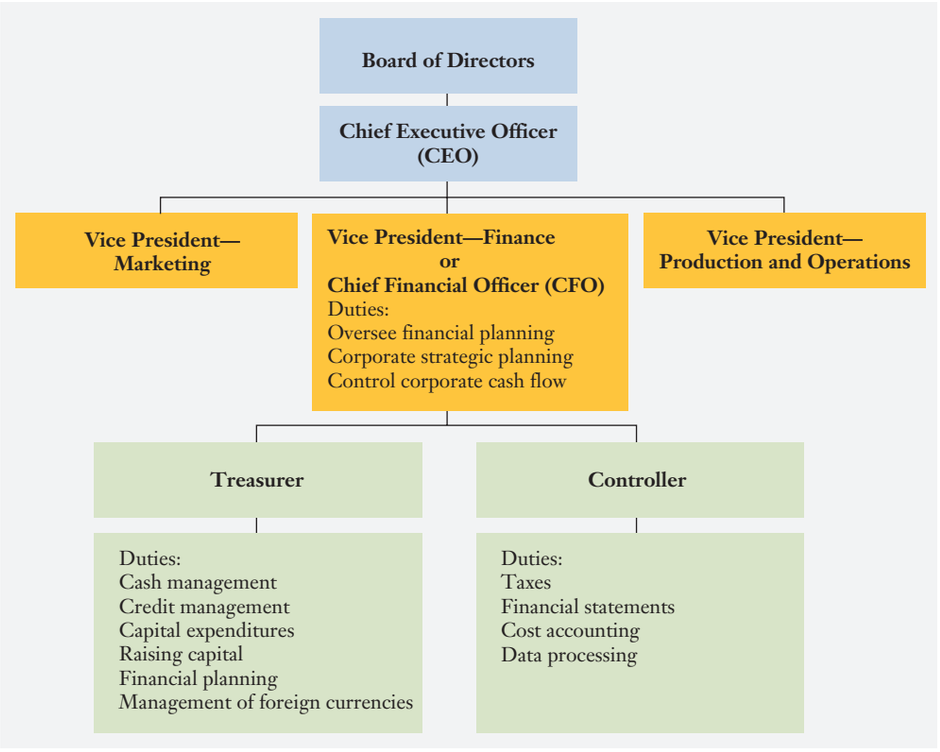
Finance is intimately woven into any aspect of the business that involves the payment or receipt of money in the future. For this reason it is important that everyone in a business have a good working knowledge of the basic principles of finance. However, within a large business organization, the responsibility for managing the firm's financial affairs falls to the firm's Chief Financial Officer (CFO).

Figure 1.2 shows how the finance function fits into a firm's organizational chart. In the typical large corporation, the CFO serves under the corporation's Chief Executive Officer (CEO) and is responsible for overseeing the firm's finance-related activities. Typically, both a treasurer and controller serve under the CFO, although in a small firm the same person may fulfill both roles. The treasurer generally handles the firm's financing activities. These include managing its cash and credit, exercising control over the firm's major spending decisions, raising money, developing financial plans, and managing any foreign currency the firm receives. The firm's controller is responsible for managing the firm's accounting duties, which include producing financial statements, paying taxes, and gathering and monitoring data that the firm's executives need to oversee its financial well-being.

Figure 1.2

How the Finance Area Fits into a Corporation

A firm's Vice President of Finance is many times called its Chief Financial Officer, or CFO. This person oversees all the firm's financial activities through the offices of the firm's Treasurer and Controller.



>> END FIGURE 1.2

Before you move on to 1.3

Concept Check | 1.2

1. What are the primary differences between a sole proprietorship, a partnership, and a corporation?
2. Explain why large and growing firms tend to choose the corporate form of organization.
3. What are the duties of a corporate treasurer?
4. What are the duties of a corporate controller?

1.3 The Goal of the Financial Manager

In 2001 Tony Fadell turned to Apple, Inc. to develop his idea for a new MP3 player. Fadell's idea had already been rejected by his previous employer and another company, but the executives at Apple were enthusiastic about the new MP3 player idea. They hired Fadell, and the rest is history. The successful sales of the new iPod MP3 player, coupled with efficient uses of financing and day-to-day funding, raised the firm's stock price. This exemplifies how a management team appointed by a corporate board made an important investment decision that had a very positive effect on the firm's total value.

As previously mentioned, we can characterize the financial activities of a firm's management in terms of three important functions within a firm:

- Making investment decisions (capital budgeting decisions): The decision by Apple to introduce the iPod.
- Making decisions on how to finance these investments (capital structure decisions): How to finance the development and production of the iPod.
- Managing funding for the company's day-to-day operations (working capital management): Apple's decision regarding how much inventory to hold.

In carrying out the above tasks, the financial managers must be aware that they are ultimately working for the firm's shareholders, who are the owners of the firm, and that the choices they make as financial managers will generally have a direct impact on their shareholders' wealth.

Maximizing Shareholder Wealth

The CEO of a publicly owned corporation like Coca-Cola (KO) is selected by a board of directors, who are themselves elected by the shareholders who purchase stock in the company. The shareholders, ranging from individuals who purchase stock for a retirement fund to large financial institutions, have a vested interest in the company. Because the shareholders are their true owners, companies commonly have a principle goal described as *maximizing shareholder wealth*, which is achieved by maximizing the stock price.

We can get some insight into the goals companies have by looking at their annual reports or websites. Consider Coca-Cola's "vision" statement in a recent annual report:

Vision

To achieve sustainable growth, we have established a vision with clear goals.

- **Profit:** Maximizing return to shareowners while being mindful of our overall responsibilities.
- **People:** Being a great place to work where people are inspired to be the best they can be.
- **Portfolio:** Bringing to the world a portfolio of beverage brands that anticipate and satisfy peoples' desires and needs.
- **Partners:** Nurturing a winning network of partners and building mutual loyalty.
- **Planet:** Being a responsible global citizen that makes a difference.

Notice that only the first item in the above list relates to the financial interests of the company's owners—the one that mentions "maximizing return" and "being mindful of our overall responsibilities."

Now let's examine Google, Inc. On the corporate portion of its website, Google states that its goal is "to develop services that significantly improve the lives of as many people as possible," and that its motto is simply, "Don't be evil." Does this mean Google doesn't care about money or the firm's owners (stockholders)? For the sake of all Google stockholders, we certainly hope not. After all, why do you buy stock in a company in the first place? You do it in the hopes of making money, right? It's nice to be altruistic and make the world a better place, but in reality, companies had better earn money if they expect banks to continue to loan them money and stockholders to continue to buy their shares. Google apparently believes both goals are possible: In addition to making the world a better place, the company says it "will optimize for the long term rather than trying to produce smooth earnings for each quarter."

We believe in the same goal that Google does—that maximizing the wealth of your shareholders and doing the right thing can go hand-in-hand. Think of this goal not as moving *away* from creating wealth for shareholders, but moving *toward* what will truly increase the value of their shares in the long term. As we explain the concepts in this book, we will assume that businesses don't act out of greed to "get rich quick." Instead, we assume they try to maximize the wealth of their shareholders by making decisions that have long-term positive effects. Very simply, managers can't afford to ignore the fact that shareholders want to see the value of their investments rise—they will sell their shares if it doesn't. This, in turn, will cause the company's share price to fall, jeopardizing the managers' jobs, if they are seen to have an excessively short-term focus.

Ethical and Agency Considerations in Corporate Finance

Ethics, or rather a lack of ethics, is a recurring theme in the news. Recently, finance has been home to an almost continuous series of ethical lapses. Financial scandals at companies like Enron and WorldCom, Bernie Madoff's Ponzi scheme that cost investors billions of dollars, and the mishandling of depositor money by financial institutions such as Stanford Financial, show that the business world does not forgive ethical lapses. Not only is acting in an ethical manner morally correct, it is also a necessary ingredient to long-term business and personal success.

We acknowledge that ethical decisions are not always clear-cut. Nonetheless, throughout this book we will point out some of the ethical pitfalls that have tripped up managers. We encourage you to study these cases so you do not repeat the same mistakes. Taking "The Wall Street Journal Workplace-Ethics Quiz" in the Appendix to this chapter is a good place for you to begin.

Agency Considerations in Corporate Finance

As we mentioned, large corporations are managed by a team separate from the firm's owners. Though management is expected to make ethical decisions that reflect the best interests of the firm's owners, this is not always the case. Indeed, managers often face situations where their own personal interests differ from the interests of shareholders. Some of these situations can be viewed as straightforward tests of the financial manager's ethics. For example, a financial manager may be in a position to evaluate an acquisition that happens to be owned by his brother-in-law. Other situations are much less straightforward. For example, a financial manager may be asked to decide whether or not to close a money-losing plant, a decision which, while saving money for the firm, will involve the personally painful act of firing the employees who will lose their jobs.

In finance, we refer to the conflict of interest between the stockholders and the managers of a firm as an **agency problem**. The managers act as the "agents" of the owners. When the managers have little or no ownership in the firm, they are less likely to work energetically for the company's shareholders. Instead, the managers will have an incentive to enrich themselves with perks and other financial benefits—say, luxury corporate jets, expensive corporate apartments, or resort vacations. They will also have an incentive to turn down projects that have an element of risk in order to avoid jeopardizing their jobs—even though their shareholders would like the company to pursue these projects. The end result of this behavior is that the value of the firm's stock is not maximized and the goal of the firm is not achieved.

Agency problems also arise when the firm's executives are considering how to raise money to finance the firm's investments. In some situations debt may be the cheapest source of financing, but managers might want to avoid debt financing because they fear the loss of their jobs should the firm get into financial trouble and not be able to pay its bills. Stockholders, on the other hand, might prefer that the firm use more debt financing since it puts pressure on management to perform at a high level.

Fortunately, there are several measures that can be taken to help mitigate the agency problem. Compensation plans can be put in place that reward managers when they act to maximize shareholder wealth. The board of directors can actively monitor the actions of managers and keep pressure on them to act in the best interests of shareholders. In addition, the financial markets play a role in monitoring management. Auditors, bankers, and credit agencies monitor the firm's performance, while security analysts provide and disseminate analysis on how well the firm is doing, thereby helping shareholders monitor the firm. Finally, firms that underperform will see their stock price fall and may be taken over and their management team replaced.

Regulation Aimed at Making the Goal of the Firm Work: The Sarbanes-Oxley Act

Because of growing concerns about both agency and ethical issues, in 2002 Congress passed the Sarbanes-Oxley Act, or "SOX" as it is commonly called. One of the primary inspirations for this new law was Enron, which failed financially in December 2001. Prior to bankruptcy, Enron's board of directors actually voted on two occasions to temporarily suspend its own "code of ethics" to permit its CFO to engage in risky financial ventures that benefited the CFO personally while exposing the corporation to substantial risk.

SOX holds corporate advisors who have access to or influence on company decisions (such as a firm's accountants, lawyers, company officers, and board of directors), legally accountable for any instances of misconduct. The act very simply and directly identifies its purpose as being "to protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws, and for other purposes," and it mandates that senior executives take individual responsibility for the accuracy and completeness of the firm's financial reports.

SOX safeguards the interests of the shareholders by providing greater protection against accounting fraud and financial misconduct. Unfortunately, all this has not come without a price. While SOX has received praise from the likes of the former Federal Reserve Chairman Alan Greenspan and has increased investor confidence in financial reporting, it has also been criticized. The demanding reporting requirements are quite costly and, as a result, may inhibit firms from listing on U.S. stock markets.

Before you move on to 1.4

Concept Check | 1.3

1. What is the goal of the firm?
2. Provide an example of an agency problem.
3. Why is ethics relevant to the financial management of the firm?
4. What was the Sarbanes-Oxley Act of 2002? What did it accomplish?

1.4 The Four Basic Principles of Finance

At first glance, finance can seem like a collection of unrelated decision rules. Nothing could be further from the truth. The logic behind the financial concepts covered in this textbook arise from four simple financial principles:

Principle 1: Money Has a Time Value

A dollar received today is worth more than a dollar received in the future. Conversely, a dollar received in the future is worth less than a dollar received today.

Perhaps the most fundamental principle of finance is that money has a time value. A dollar received today is more valuable than a dollar received one year from now. That is, we can invest the dollar we have today to earn interest so that at the end of one year we will have more than one dollar.

Because we can earn interest on money received today, it is better to receive money sooner rather than later. For example, suppose you have a choice of receiving $1,000 either today or one year from now. If you decide to receive it a year from now, you will have passed up the opportunity to earn a year's interest on the money. Economists would say you suffered an "opportunity loss" or an **opportunity cost**.

Principle 2: There Is a Risk-Return Tradeoff

We won't take on additional risk unless we expect to be compensated with additional return.

Principle 2 is based on the idea that individuals are risk-averse, which means that they prefer to get a certain return on their investment rather than an uncertain return. However, the world is an inherently risky place, so at least some individuals will have to make investments that are risky. How are investors induced to hold these risky investments when there are safer alternative investments? By offering investors a higher *expected* rate of return on the riskier investments.

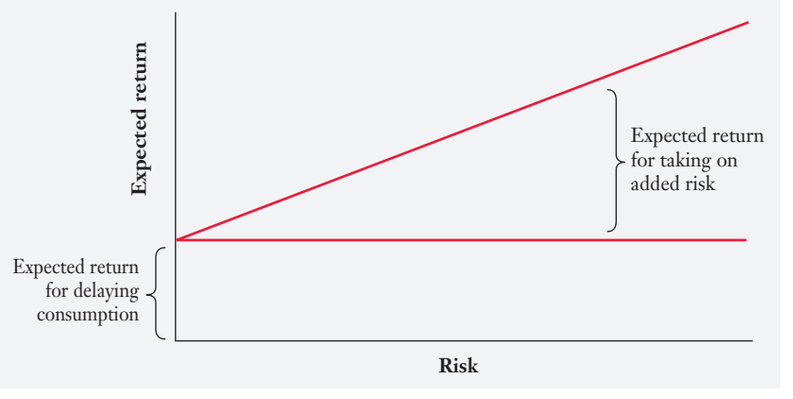
Notice that we refer to *expected* return rather than *actual* return. As investors, we have expectations about what returns our investments will earn; however, a higher expected rate of return is not always a higher realized rate of return. For example, you probably would not have been willing to invest in General Motors (GM) stock at the beginning of 2008 unless you expected the returns on GM to be very high. However, GM stock returns in 2008 were terrible; the stock lost more than 85% of its value as it headed toward bankruptcy.

The risk-return relationship will be a key concept as we value assets and proposed new investment projects throughout this text. We will also describe how investors measure risk. Interestingly, much of the work for which the 1990 Nobel Prize for economics was awarded centered on the graph in Figure 1.3 and how to measure risk. Both the graph and the risk-return relationship it depicts will reappear often in this text.

Figure 1.3

There Is a Risk-Return Tradeoff

Investors demand a return for delaying their consumption. To convince them to take on added risk, they demand a higher expected return.



>> END FIGURE 1.3

Principle 3: Cash Flows Are the Source of Value

Profit is an accounting concept designed to measure a business's performance over an interval of time. Cash flow is the amount of cash that can actually be taken out of the business over this same interval.

You may recall from your accounting classes that a company's profits can differ dramatically from its cash flows. Cash flows represent actual money that can be spent, and, as we will later discuss, cash flows are what determines an investment's value.

Profits are different. To determine a company's accounting profit, its accountants have to make a judgment about how the business's costs and revenues are allocated to each time period. Consequently, different judgments result in different profits. In fact, a firm can show a profit on paper even when it is generating no cash at all. This isn't to say that accounting profits are unimportant to investors. Investors see accounting profits as an important indicator of a firm's past—and perhaps its future—ability to produce cash flows for its investors. So, to the extent that profits affect investors' expectations, they are an important source of information.

There is another important point we need to make about cash flows. Recall from your economics classes that people make the best choices when they look at marginal, or *incremental,* cash flows. That's why in this book we focus on the incremental cash flow to the company as a whole that is produced as a consequence of a decision. The incremental cash flow to the company as a whole is the difference between the cash flows the company will produce with the potential new investment it's thinking about making, and the cash flows it would produce without that investment. To understand this concept, let's think about the incremental cash flows of a movie like *Pirates of the Caribbean.* Not only did Disney make money on the movie itself, but also the movie increased the number of people attracted to Disney theme parks to go on the "Pirates of the Caribbean" ride. So, if you were to evaluate that movie, you'd want to include its impact throughout the entire company.

Principle 4: Market Prices Reflect Information

Investors respond to new information by buying and selling their investments. The speed with which investors act and the way that prices respond to the information determine the efficiency of the market.

The prices of financial claims traded in the public financial markets respond rapidly to the release of new information. Thus, when earnings reports come out, prices adjust immediately to the new information, moving upward if the information is better than expected and downward if it is worse than expected. In efficient markets, such as those that exist in the United States and other developed countries, this process takes place *very* quickly. As a result, it's hard to profit from trading on publicly released information.

To illustrate how quickly stock prices can react to information, consider the following set of events: While Nike (NKE) CEO William Perez flew aboard the company's Gulfstream jet one day in November 2005, traders on the ground sold off a significant amount of Nike's stock. Why? Because the plane's landing gear was malfunctioning, and they were watching TV coverage of the event! While Perez was still in the air, Nike's stock dropped 1.4%. Once Perez's plane landed safely, Nike's stock price immediately bounced back. This example illustrates that in the financial markets there are ever-vigilant investors who are looking to act even *in anticipation* of the release of new information.

Consequently, managers can expect their company's share prices to respond quickly to the decisions they make. Good decisions will result in higher stock prices. Bad decisions will result in lower stock prices.

Before you begin end of chapter material

Concept Check | 1.4

1. What are the four principles of finance?
2. A fundamental guiding principle of investing is that higher risks require higher rewards or returns. Give two examples of the risk-return relationship.
3. What do we mean when we say that market prices reflect information?

Applying the Principles of Finance to Chapter 1

P Principle 1: **Money Has a Time Value** A dollar received today is worth more than a dollar received in the future. Conversely, a dollar received in the future is worth less than a dollar received today.

P Principle 2: **There Is a Risk-Return Tradeoff** We won't take on additional risk unless we expect to be compensated with additional return.

P Principle 3: **Cash Flows Are the Source of Value** Cash flow measures the amount of cash that can actually be taken out of the business over an interval of time. As a result, it is the source of value.

P Principle 4: **Market Prices Reflect Information** Investors respond to new information by buying and selling. As a result, prices reflect what is known. The speed with which investors act and prices respond reflects the efficiency of the market.

Chapter Summary

1.1 Understand the importance of finance in your personal and professional lives and identify the three primary business decisions that financial managers make. (pgs. 4–5)

SUMMARY: Finance is the study of how individuals and businesses allocate money over time. We all face choices that involve spending or receiving money now versus sometime in the future. What you will learn in this book will help you to better understand how to make those choices, both in your personal life and as a financial manager.

The decision-making process of planning and managing a firm's long-term investments is called capital budgeting. The mix of long-term sources of funds used by a firm to finance its operations is called its capital structure. Working capital management involves management of the firm's short-term investment in assets and liabilities and ensuring that the firm has sufficient resources to maintain its day-to-day business operations.

Concept Check | 1.1

1. What are the three basic types of issues that arise in business that are addressed by the study of business finance?
2. List three non-finance careers to which the study of finance applies.

KEY TERMS

Capital budgeting, page 4 The decision-making process used to analyze potential investments in fixed assets.

Capital structure, page 4 The mix of long-term sources of funds used by the firm.

Financial markets, page 5 A mechanism that allows people to easily buy and sell financial claims.

Working capital management, page 4 Management of day to day operation and decisions related to working capital and short term financing.

1.2 Identify the key differences between the three major legal forms of business. (pgs. 5–9)

SUMMARY: The sole proprietorship is a business operation owned and managed by an individual. Initiating this form of business is simple and generally does not involve any substantial organizational costs. The proprietor has complete control of the firm but must be willing to assume full responsibility for its outcomes.

Similar to the sole proprietorship, a general partnership is simply a coming together of two or more individuals who face unlimited liability for their involvement in the partnership. The limited partnership is another form of partnership sanctioned by states to permit all but one of the partners to have limited liability if this is agreeable to all partners. The one partner with unlimited liability is the general partner.

The corporation form of organization is taken when a business has an increased need to raise capital from public investors. Although greater organizational costs and regulations are imposed on this legal entity, the corporation is more conducive to raising large amounts of capital. Limited liability, continuity of life, and ease of transfer in ownership, all of which increase the marketability of the investment, have greatly contributed to attracting large numbers of investors to the corporate environment. The formal control of the corporation is vested in the parties who own the greatest number of shares. However, day-to-day operations are managed by the corporate officers, who theoretically serve on behalf of the stockholders. An attractive alternative to the corporation for a small business is the limited liability company (LLC), a cross between a partnership and a corporation. An LLC combines the tax benefits of a partnership (no double taxation of earnings) and the limited liability benefit of corporations (the owners' liability is limited to what they invest).

KEY TERMS

Corporation, page 7 A business entity that legally functions separate and apart from its owners.

Debt, page 5 Money that has been borrowed and must be repaid. This includes such things as bank loans and bonds.

Dividends, page 7 The portion of corporation's earnings that are distributed to its shareholders.

Equity, page 6 The ownership interest in a corporation. It is the stockholders' investment in the firm and the cumulative profits retained in the business up to the date of the balance sheet.

General partner, page 6 A member of a general partnership or a member of a limited partnership who actually runs the business and faces unlimited liability for the firm's debts.

General partnership, page 6 A partnership in which all the partners are fully liable for the indebtedness incurred by the partnership.

Limited liability company (LLC), page 7 A business organizational form that blends elements of the partnership and corporate forms.

Limited partner, page 6 A member of a limited partnership who is only liable up to the amount invested by that member.

Limited partnership, page 6 A partnership in which one or more of the partners has limited liability that is restricted to the amount of capital he or she invests in the partnership.

Partnership, page 7 An association of two or more individuals joining together as co-owners to operate a business for profit.

Shareholders, page 7 The owners of the firm, someone who owns shares of stock in a corporation.

Shares, page 6 Units of ownership.

Sole proprietorship, page 5 A business owned by a single individual.

Stockholders, page 7 The owners of the corporation's stock. The corporation is legally owned by its current set of stockholders, or owners, who elect a board of directors.

Concept Check | 1.2

1. What are the primary differences between a sole proprietorship, a partnership, and a corporation?
2. Explain why large and growing firms tend to choose the corporate form of organization.
3. What are the duties of a corporate treasurer?
4. What are the duties of a corporate controller?

1.3 Understand the role of the financial manager within the firm and the goal for making financial choices. (pgs. 9–11)

SUMMARY: The finance function in most large firms is headed by a Vice President of Finance or Chief Financial Officer (CFO). The CFO typically reports directly to the firm's CEO. The CFO oversees the firm's financing decisions, including the management of the firm's cash position (in larger firms this responsibility is delegated to the company Treasurer, who reports to the CFO) as well as corporate reporting and general accounting. (Once again, in large firms this task is delegated to the company Controller, who also reports to the CFO.)

A critically important goal of finance is to design incentive compensation plans that better align the interests of managers with those of the firm's owners (stockholders).

Firms are in business to make their owners, or shareholders, wealthier. With this goal in mind, financial managers must make financial decisions regarding long-term investments, financing, and management of short-term cash needs. For very large firms whose shares of stock are publicly traded, this goal is commonly described as *maximizing the wealth of shareholders* (the business's owners).

In finance, ethics—or rather a lack of ethics—is a recurring theme in the news. The agency problem interferes with implementing the goal of maximizing shareholder wealth. The agency problem is the result of the conflict of interest between the stockholders and the managers of a firm. The managers act as the "agents" of the owners. When the managers have little or no ownership in the firm, they are less likely to work energetically for the company's shareholders. Instead, the managers will have an incentive to enrich themselves with perks and other financial benefits.

KEY TERM

Agency problem, page 10 Conflicts that arise out of the separation of management and ownership of the firm.

Concept Check | 1.3

1. What is the goal of the firm?
2. Provide an example of an agency problem.
3. Why is ethics relevant to the financial management of the firm?
4. What was the Sarbanes-Oxley Act of 2002? What did it accomplish?

1.4 Explain the four principles of finance that form the basis of financial management for both businesses and individuals. (pgs. 11–13)

SUMMARY:

Principle 1: Money Has a Time Value

A dollar received today is worth more than a dollar received in the future. Conversely, a dollar received in the future is worth less than a dollar received today.

Principle 2: There Is a Risk-Return Tradeoff
We won't take on additional risk unless we expect to be compensated with additional return.

Principle 3: Cash Flows Are the Source of Value
Profit is an accounting concept designed to measure a business's performance over an interval of time. Cash flow is the amount of cash that can actually be taken out of the business over this same interval.

Principle 4: Market Prices Reflect Information
Investors respond to new information by buying and selling such that prices reflect what is known. The speed with which investors act and prices respond reflects the efficiency of the market.

Concept Check | 1.4

1. What are the four principles of finance?
2. A fundamental guiding principle of investing is that higher risks require higher rewards or returns. Give two examples of the risk-return relationship.
3. What do we mean when we say that market prices reflect information?

KEY TERM

Opportunity cost, page 12 The value of the next best alternative that is foregone as a result of making a decision.

Study Questions

1–1. **(Related to Regardless of Your Major: Welcome to the World of Finance on page 4)** In the *Regardless of Your Major* feature box at the beginning of this chapter, we discussed how the topic of Principle 1, the time value of money, is relevant to both your personal and professional life. Describe a decision you might face in the future that will require you to consider the future value of money received (or invested). For example, how might the time value of money enter into a decision to push back your graduation date by one year?

1–2. Explain the three types of business decisions that a financial manager faces.

1–3. According to Principle 2, how should investors decide where to invest their money?

1–4. In very basic terms describe how profits and cash flow are different.

1–5. List the three main forms of business organizations and describe their advantages and disadvantages. If you were to consider starting up a lawn care business for the summer, what type of business organization might you use?

1–6. Who really owns a corporation and how does that impact the goal of the firm?

1–7. What goal do the owners of a for-profit business generally follow?

1–8. Why is maximizing a firm's accounting profits not an appropriate goal for the firm?

Appendix: *The Wall Street Journal* Workplace-Ethics Quiz

Regardless of what your job may be, you will face ethical dilemmas on a daily basis. Some of these dilemmas may be directly related to finance, while others may simply be questions of right or wrong. No matter the nature of the ethical questions, how you deal with them may go a long way in determining the direction of your career.

The spread of technology into the workplace has raised a variety of new ethical questions, and many old ones still linger. The following quiz will give you some ethical questions to think about. After taking it, compare your answers with those of other Americans surveyed.

OFFICE TECHNOLOGY

1–1. Is it wrong to use company e-mail for personal reasons?
Yes No

1–2. Is it wrong to play computer games on office equipment during the workday?
Yes No

1–3. Is it unethical to blame an error you made on a technological glitch?
Yes No

GIFTS AND ENTERTAINMENT

1–4. Is a $50 gift to a boss unacceptable?
Yes No

1–5. Is a $50 gift from the boss unacceptable?
Yes No

1–6. Of gifts from suppliers: Is it OK to take a $200 pair of football tickets?
Yes No

1–7. Is it OK to take a $100 holiday food basket?
Yes No

1–8. Can you accept a $75 prize won at a raffle at a supplier's conference?
Yes No

TRUTH AND LIES

1–9. Due to on-the-job pressure, have you ever abused or lied about sick days?
Yes No

1–10. Due to on-the-job pressure, have you ever taken credit for someone else's work or idea?
Yes No

ETHICS-QUIZ ANSWERS

1. 34% said personal e-mail on company computers is wrong
2. 49% said playing computer games at work is wrong
3. 61% said it's unethical to blame your error on technology
4. 35% said a $50 gift to the boss is unacceptable
5. 12% said a $50 gift from the boss is unacceptable
6. 70% said it's unacceptable to take the $200 football tickets
7. 35% said it's unacceptable to take the $100 food basket
8. 40% said it's unacceptable to take the $75 raffle prize
9. 11% reported they lied about sick days
10. 4% reported they took credit for the work or ideas of others

Sources: Ethics Officer Association, Belmont, Mass., and Ethical Leadership Group, Wilmette, Ill. Surveys sampled a cross-section of workers at large companies nationwide. Reprinted by permission of *The Wall Street Journal,* Copyright © 1999 Dow Jones & Company, Inc. All Rights Reserved Worldwide.

CHAPTER 2

Firms and the Financial Market

Chapter **Outline**

Principles P 2 and P 4 Applied

When reading this chapter, you should keep in mind two of the basic principles of finance introduced in Chapter 1: P Principle 2: **There Is a Risk-Return Tradeoff** and P Principle 4: **Market Prices Reflect Information**. Financial markets are organized to offer investors a wide range of investment opportunities that have different risks and different expected rates of return that reflect those risks. The goal of these markets is to provide investors with opportunities that best fit their risk and return objectives, while at the same time to provide businesses with opportunities to raise funds—to train employees, do research, and build new plants—at prices that appropriately reflect the prospects of the business.

If you have a student loan or a car loan, you have already been introduced to financial markets. You are spending more than you currently earn and have borrowed money through the financial markets to make ends meet. But once you graduate and enter the workforce, you may earn more than you spend and therefore be able to save. Once again, you will become involved in the financial markets, but this time as a saver rather than a borrower. This pattern of borrowing and saving also holds true for businesses, as they borrow money to finance their investments and as they invest their savings in the hopes of generating even more money in the future.

In this chapter we provide a preliminary overview of the U.S. financial markets. We first review some of the primary institutions that facilitate the transfer of money from investors to companies and individuals. Next, we discuss the securities markets in which different securities issued by businesses are bought and sold. The primary objective of this chapter is to provide a sense of the richness of the financial marketplace, the critical role that it plays in each of our lives, and how corporations use the financial markets to raise capital.

Regardless of Your Major...

"Defined Benefit vs. Defined Contribution Retirement Plans"

When you start your first job after graduating, your employer will probably give you the option of automatically investing part of your paycheck each pay period for your retirement. Learning about the financial markets will help you analyze your options and make good selections. Twenty years ago, retirement plans were typically **defined benefit plans**. You would work for only one company, and the company would reward your loyalty and hard work by paying you a pension during your retirement based on your years of employment and the level of pay that you earned. In other words, the company set aside money to pay your pension benefit and invested it for you. Today, people change jobs often, and pension plans like the one just described are very rare. Instead, most employers now offer their employees **defined contribution plans**, such as a 401(k) savings plan. With a defined contribution pension plan, you, the employee, and your employer make periodic cash contributions to your retirement fund that you must take responsibility for investing. So, it doesn't matter whether you're a doctor, lawyer, truck driver, or salesperson, you are going to be a pension fund manager.

Your Turn: See Study Question 2–1.

2.1 The Basic Structure of the U.S. Financial Markets

In Chapter 1, we showed that businesses typically opt to take on the form of a corporation when they need to raise large amounts of capital. In this chapter, we will demonstrate how a corporation raises capital using the U.S. financial markets.

As discussed in Chapter 1, a financial market is any place where money and credit are exchanged. When you take out a car loan from your bank, you participate in the financial markets. Within the financial markets there are three principal sets of players that interact:

1. **Borrowers—**Those who need money to finance their purchases. This includes businesses that need money to finance their investments or to expand their inventories as well as individuals who borrow money to purchase a new automobile or a new home.
2. **Savers (Investors)—**Those who have money to invest. These are principally individuals who save money for a variety of reasons, such as accumulating a down payment for a home or saving for a return to graduate school. Firms also save when they have excess cash.
3. **Financial Institutions (Intermediaries)—**The financial institutions and markets that help bring borrowers and savers together. The financial institution you are probably most familiar with is the **commercial bank**, a financial institution that accepts deposits and makes loans, such as Bank of America or Citibank, where you might have a checking account. However, as we discuss in the next section, there are many other types of financial institutions that bring together borrowers and savers.

2.2 The Financial Marketplace: Financial Institutions

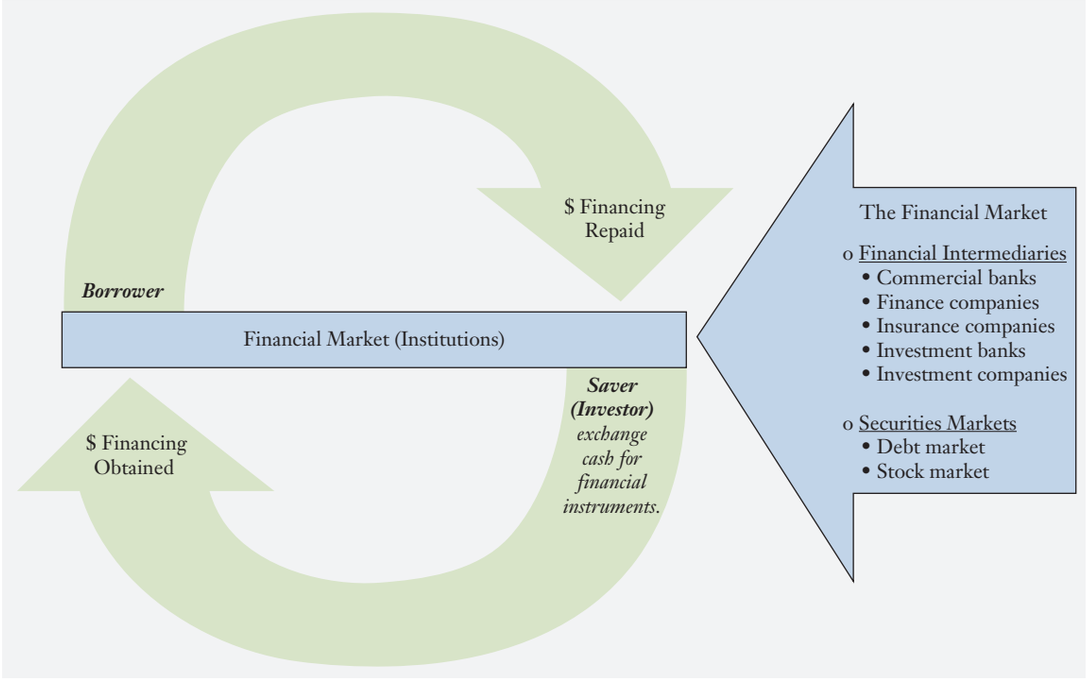
The financial markets facilitate the movement of money from savers, who tend to be individuals, to borrowers, who tend to be businesses. In return for the use of the savers' money, borrowers provide the savers with a return on their investment.

As shown in Figure 2.1, the institutions that make up the financial marketplace consist of commercial banks, finance companies, insurance companies, investment banks, and investment companies. We call these institutions that help bring together individuals and businesses **financial intermediaries**, because these institutions stand between those who have money to invest and those who need money. Financial markets are often described by the maturities of

Figure 2.1

Financial Markets, Institutions, and the Circle of Money

Financial markets consist of institutions that facilitate the transfer of savings from individuals and firms with excess cash to borrowers who have less cash than they need.



>> END FIGURE 2.1

the securities traded in them. For example, the **money markets** are markets for short-term debt instruments, with "short-term" meaning maturities of 1 year or less. On the other hand, **capital markets** are markets for long-term financial instruments. "Long-term" here means having maturities that extend beyond 1 year.

There are no national boundaries on financial markets. A borrower in Brazil, for example, might borrow money from a bank in London to finance a plant expansion. Furthermore, it's not just individuals and companies that raise money and invest in the global financial markets. Governments can enter the financial markets when they are experiencing a deficit and need to raise money to finance their expenditures. Governments can also enter financial markets when they have more money than they plan to spend and want to invest the surplus. For example, the Chinese government invests huge sums of money in U.S. Treasury Bonds, which are long-term debt securities issued by the U.S. government.

Commercial Banks: Everyone's Financial Marketplace

As previously mentioned, the commercial bank is probably the first financial intermediary each of us has dealt with in the financial marketplace. And, because they provide many firms with their initial funding, commercial banks also tend to be one of the first financial intermediaries that businesses deal with. Banks collect the savings of individuals as well as businesses and then lend these pooled savings to other individuals and businesses. They make money by charging a rate of interest to borrowers that exceeds the rate they pay to savers. They are also one of the major lenders to businesses.

In the United States, although banks can loan money to industrial corporations, banks are prohibited by law from owning them. This restriction prevents banks from loaning money to the industrial firms that they own; however, this restriction is not universal around the world. For instance, in countries such as Japan and Germany, banks are among the largest owners of industrial firms. Table 2.1 lists the four largest banks in the United States and their total deposits. It is very possible that you will recognize your personal bank among this list because

Table 2.1 **Four Largest Commercial Banks in the United States at the End of 3rd Quarter 2009**

Commercial banks are ranked by the total dollar value of their deposits. Most large banks are owned by holding companies, which are companies that own other types of businesses in addition to the bank. However, the types of businesses that holding companies can own are restricted by Federal law. Any firm that owns or controls 25% or more of a commercial bank is classified as a bank holding company and must register with the Federal Reserve System, which is the primary regulator of commercial banking in the United States. The financial crisis of 2008–09 led to consolidations of weaker banks, most notably the acquisition of Wachovia by Wells Fargo.

Institution Name	Description	Total Deposits ($ in thousands)
Bank of America Corporation (BAC)	As of December 31, 2008, the company operated approximately 6,100 retail banking offices and 18,700 automated teller machines. Bank of America was founded in 1874 and is headquartered in Charlotte, North Carolina.	$1,002,708,983
JPMorgan Chase & Co. (JPM)	This financial holding company provides a range of financial services worldwide through six segments: Investment Banking, Retail Financial Services, Card Services, Commercial Banking, Treasury and Securities Services, and Asset Management. The company was founded in 1823 and is headquartered in New York, New York.	$ 962,505,000
Citigroup, Inc. (C)	As of December 31, 2008, Citigroup operated through a network of 7,730 branches. The company was founded in 1812 and is based in New York, New York.	$ 785,801,000
Wells Fargo Bank (WFC)	Wells Fargo & Company was founded in 1852 and is headquartered in San Francisco, California. The bank acquired Wachovia Corporation in 2008, resulting in 11,000 branches and 12,160 automated teller machines.	$ 438,737,000

Source: http://www.ibanknet.com/scripts/callreports/fiList.aspx?type=031

the very largest banks operate throughout the entire United States, and the twenty-five largest banks hold more than 50% of total deposits.

Non-Bank Financial Intermediaries

In addition to commercial banks, there are a number of highly specialized financial intermediaries that also provide financial services to businesses. These include:

- financial services corporations, such as General Electric's (GE) GE Capital division and CIT Corporation (CIT);
- insurance companies, like AIG and Prudential (PRU);
- investment banks, like Goldman Sachs (GS) and Morgan Stanley (MS); and
- investment companies, including mutual funds, hedge funds, and private equity firms.

Financial Services Corporations

Perhaps the best-known financial service corporation in the world is GE Capital, the finance unit of the General Electric Corporation. GE Capital provides commercial loans, financing programs, commercial insurance, equipment leasing of every kind, and other services, in over 35 countries around the world. GE provides credit services to more than 130 million cus-

tomers, including consumers, retailers, auto dealers, and mortgage lenders, offering products and services ranging from credit cards to debt consolidation to home equity loans. CIT Group, Inc. is another commercial finance company that offers a wide range of financing services to businesses. The important thing to note here is that although financial services corporations are in the lending or financing business, they are not commercial banks.

Insurance Companies

Insurance companies are by definition in the business of selling insurance to individuals and businesses to protect their investments. This means that they collect premiums, hold the premiums in reserves until there is an insured loss, and then pay out claims to the holders of the insurance contracts. Note that in the course of collecting and holding premiums, the insurance companies build up huge pools of reserves to pay these claims. These reserves are then used in various types of investments, including loans to individuals and businesses. The American International Group, Inc. (AIG) is now a household name because of the debt market crisis of 2008 and the ensuing government bailout. However, the company's business activities serve as an example of the degree to which insurance companies have become involved in business finance. AIG not only sells insurance products but also provides financial services, including aircraft and equipment leasing, consumer finance, insurance premium financing, and debt and loan insurance. Of particular note in this listing of services is debt and loan insurance, which includes selling guarantees to lenders that reimburse them should the loans they made go into default. This type of transaction is called a **credit default swap**, and we will have more to say about this in Chapter 20, where we discuss risk management.

Investment Banks

Investment banks are specialized financial intermediaries that help companies and governments raise money and provide advisory services to client firms when they enter into major transactions such as buying or merging with other firms. Prominent firms that provide investment banking services include Bank of America, Merrill Lynch, Barclays, Citigroup, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, JPMorgan Chase, Morgan Stanley, and UBS AG.

The Demise of the Stand-Alone Investment Banking Industry

From the time of George Washington until the Great Depression in the 1930s, the U.S. economy has experienced financial panics and banking crises about every 15 years. In response to the Great Depression and the failures of 4,004 banks in 1933, Congress enacted the National Banking Act of 1933, of which several sections are commonly referred to as the Glass-Steagall Act. An important component of the Glass-Steagall Act was the separation of commercial banking and the investment industry. Specifically, in order to limit risks to banks, the act prohibited commercial banks from entering the investment industry. As a result, a "stand-alone" investment banking industry was created with firms like Lehman Brothers, Bear Stearns, Merrill Lynch, Goldman Sachs, and Morgan Stanley.

With the repeal of Glass-Steagall in 1999, many commercial banks acquired investment banks, while others, like JPMorgan Chase & Co. (JPM), entered the investment banking business. The advantage of this combination was that it gave investment banks access to stable funding through bank deposits along with the ability to borrow from the Federal Reserve in the case of an emergency, while the commercial banks gained access to the more lucrative, albeit more risky, investment industry. Then, in 2008, as a result of the financial crisis and banking meltdown, the major stand-alone investment banks either failed (Lehman Brothers), were acquired by commercial banks (Bear Stearns and Merrill Lynch), or were converted into commercial banks (Morgan Stanley and Goldman Sachs). At the end of the day, there were no major stand-alone investment banking firms left.

Investment Companies

Investment companies are financial institutions that pool the savings of individual savers and invest the money, purely for investment purposes, in the securities issued by other companies.

Mutual Funds and Exchange-Traded Funds (ETFs)

Perhaps the most widely known type of investment company is the **mutual fund**, a special type of intermediary through which individuals can invest in virtually all of the securities offered in the financial markets.[1] When individuals invest in a mutual fund, they receive shares in a fund that is professionally managed according to a stated investment objective or goal—for example, investing only in international stocks. Shares in the mutual fund grant ownership claim to a proportion of the mutual fund's portfolio.

A share in a mutual fund is not really like a share of stock since you can only buy and sell shares in the mutual fund directly from the mutual fund itself. The price that you pay when you buy your shares and the price you receive when you sell your shares is called the mutual fund's **net asset value (NAV)**, which is calculated daily based on the total value of the fund divided by the number of mutual fund shares outstanding. In effect, as the value of the mutual fund investments goes up, so does the price of the mutual fund's shares.

Mutual funds can either be *load* or *no-load* funds. A **load fund** is a mutual fund that is sold through a broker, financial advisor, or financial planner who earns a commission in the form of the load fee when he or she sells shares of the mutual fund. The term *load* refers to the sales commission you pay when acquiring ownership shares. These commissions can be quite large, typically in the 4.0% to 6.0% range, but in some cases they can run as high as 8.5%. A mutual fund that doesn't charge a commission is referred to as a **no-load fund**. When you purchase a no-load mutual fund, you generally don't deal with a broker or advisor. Instead, you deal directly with the mutual fund investment company via its website, direct mail, or through an 800 telephone number.

An **exchange-traded fund** (or **ETF**) is very much like a mutual fund except for the fact that the ownership shares in the ETF can be bought and sold on the stock exchanges. Most ETFs track an index, such as the Dow Jones Industrial Average or the S&P 500, and generally have relatively low expenses.

Mutual funds and ETFs provide a cost-effective way to diversify, which reduces risk—a great benefit for the small investor. If you only have $10,000 to invest, it would be difficult to diversify by purchasing shares of individual companies, since you would have to pay a brokerage commission for each individual stock you purchase. For example, buying 50 different stocks is likely to cost you $500 or more in commissions, which would be 5% of the amount invested. By buying a mutual fund or ETF you can indirectly purchase a portfolio of 50 or more stocks with just one transaction.

Hedge Funds

A **hedge fund** is very much like a mutual fund, but hedge funds are less regulated and tend to take more risk. They also tend to more actively influence the managers of the corporations that they invest in. Because of the higher risk, hedge funds are open to a limited range of investors who are deemed to be sufficiently savvy. Only an **accredited investor**, which means an individual with a net worth that exceeds $1 million, can invest in a hedge fund.

Management fees are also somewhat higher for hedge funds; they typically run at about 2 percent of the assets and include an incentive fee (typically 20% of profits) based on the fund's overall performance.

Private Equity Firms

A **private equity firm** is a financial intermediary that invests in equities that are not traded on the public capital markets. Two groups of private equity firms dominate this group, venture capital (VC) firms and leveraged buyout (LBO) firms. **Venture capital firms** raise money from investors (wealthy people and other financial institutions) which they then use to provide financing for private start-up companies when they are first founded. For example, Sevin Rosen Funds, established in 1980, has provided venture financing to Cypress Semiconductor (CY) and Silicon Graphics (SGIC). Kleiner Perkins Caufield & Byers, or KPCB as it is commonly called, is a venture capital firm located in Silicon Valley. KPCB is perhaps best known today for its involvement in the initial financing of Google (GOOG). It has also partnered with Apple to found the iFund™, a $100 million investment initiative that will fund market-changing ideas and products that extend the iPhone and iPod touch platform.

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[1]For a more in-depth discussion of mutual funds go to http://www.sec.gov/answers/mutfund.htm.

The Business of Life

Controlling Costs in Mutual Funds

In choosing the right mutual fund, one thing is clear—costs kill. You will want to pick your fund with an eye toward keeping expenses down. In fact, the Securities and Exchange Commission has put together a website (www.sec.gov/investor/tools/mfcc/mfcc-int.htm) to show you how much damage mutual fund expenses will do to your investment. If you start with $10,000 and invest it for 30 years, achieving gross returns (before expenses) of 10.2% (the market average for the last three-quarters of a century), and assuming fund operating expenses of 1.4% (the average expense on a U.S. domestic stock fund), your $10,000 will grow to $120,713. That sounds pretty good until you notice that the cost of that 1.4% operating expense plus foregone earnings on your investment totals $63,554! That's over 34% of the gross earnings of the fund. If you knock expenses down to 0.18%, your investment grows to $174,572 and your expenses drop down to $9,695!

It is possible to cut your expenses down to as little as 0.18% by investing in an index fund (i.e., a fund that tries to track a market index, such as the S&P 500, by buying the stocks that make up that index). In general, index funds perform better than the actively managed funds. In fact, from 1985 to 2000, 84.5% of U.S. actively managed stock mutual funds (as opposed to index funds) underperformed the S&P 500 index, with 77.5% underperforming over the entire 10 years and 81.6% underperforming in the most recent 5 years. According to a study from Jeremy J. Siegel's book *Stocks for the Long Run*, between 1982 and 2003, there were only three years in which more than 50% of mutual funds beat the S&P 500.

Your Turn: See Study Question 2–10.

The second major category of private equity firms is the **leveraged buyout fund**. These funds acquire established firms that typically have not been performing very well with the objective of making them profitable again and then selling them. LBO funds have been the subject of a number of movies including *Barbarians at the Gate*, *Other Peoples' Money,* and *Wall Street.*

Prominent LBO private equity firms include Cerberus Capital Management, L.P., which purchased the Chrysler Corporation from Daimler Benz, and TPG (formerly Texas Pacific Group), which has invested in a number of prominent firms including Continental Airlines (CAL), Ducati (DMH.BE), Neiman Marcus, Burger King (BKC), MGM (MGM), Harrah's (HAG.HM) and Freescale Semiconductor (FSL-B). A third well-known LBO private equity firm is KKR (Kohlberg, Kravis, and Roberts), whose investment in the likes of RJR Nabisco provided the storyline for the popular movie *Barbarians at the Gate*.

The amount of money managed by private equity firms has grown dramatically over the last three decades, with new funds raised surpassing $200 billion in both 2005 and 2006. Three-quarters of the total is raised in North America; the majority of the remainder is raised in Europe. Of the total amount of money managed by private equity firms, roughly two-thirds is invested in the buyout or LBO category. In fact, LBO transactions grew from $7.5 billion in 1991 to $500 billion in 2006! However, the dollar amount of capital invested by the private equity intermediaries understates their importance to the economy. Private equity funding is largely responsible for financing the birth of new businesses and underwriting the renovation of old and faltering businesses.

Before you move on to 2.3

Concept Check | 2.2

1. Explain how individuals and firms use financial intermediaries to raise money in the financial markets.
2. How do commercial banks differ from other non-bank financial intermediaries?
3. What are examples of investment companies?
4. What is a hedge fund and how does it differ from a mutual fund?
5. What are the two principal types of private equity firms?

2.3 The Financial Marketplace: Securities Markets

A **security** is a negotiable instrument that represents a financial claim. It can take the form of ownership (stocks) or a debt agreement. The securities markets allow businesses and individual investors to trade the securities issued by public corporations. Public corporations are those whose debt and equity are traded in public markets. Securities markets are typically discussed in terms of the primary and secondary markets. A **primary market** is a market in which new, as opposed to previously issued, securities are bought and sold for the first time. In this market, firms issue new securities to raise money that they can then use to help finance their businesses. The key feature of the primary market is that the firms selling securities actually receive the money raised.

The **secondary market** is where all subsequent trading of previously issued securities takes place. In this market the issuing firm does not receive any new financing, as the securities it has sold are simply being transferred from one investor to another. The principal benefit of the secondary market for the shareholders of firms that sell their securities to the public is liquidity. That is, if you purchased some of the shares of Google when it went public, you could easily sell those shares in the secondary market if you decided you no longer wanted to hold them. This ability to sell when you want to means that your Google stock is a very liquid investment. As a result, investors are more willing to invest in these securities, which benefits the issuing firm.

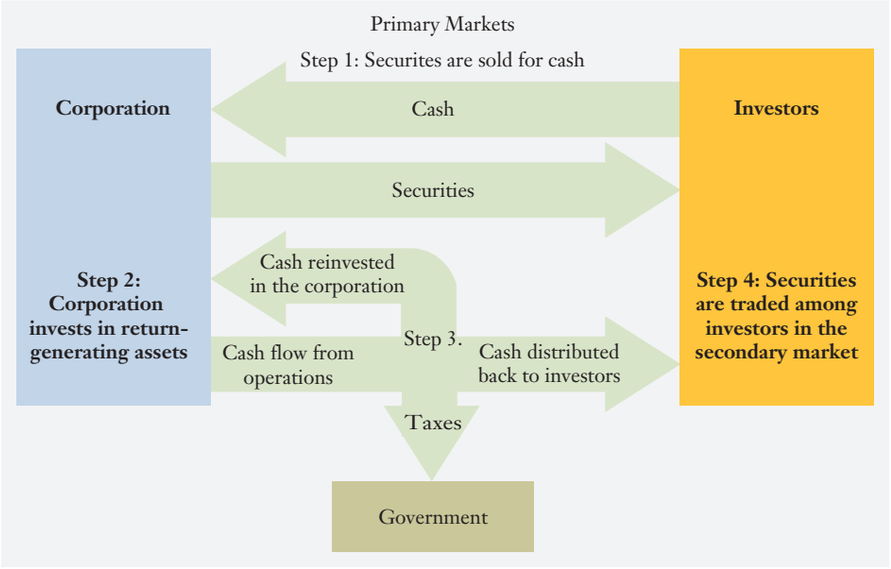
How Securities Markets Bring Corporations and Investors Together

Figure 2.2 describes the role of securities markets in bringing investors together with businesses looking for financing. In this regard, the securities markets are just another component of the financial marketplace. They are unique, however, in that investors in securities markets

Figure 2.2

Security Markets Provide a Link between the Corporation and Investors

Step 1: Initially, the corporation raises funds in the financial markets by selling securities (a primary market transaction); Step 2: The corporation then invests this cash in return-generating assets—new projects; Step 3: The cash flow from those assets is either reinvested in the corporation, given back to the investors, or paid to the government in the form of taxes; and Step 4: Immediately after the securities have been issued they are traded among investors in the secondary market, thereby setting their market price.



>> END FIGURE 2.2

provide money directly to the firms that need it, as opposed to making deposits in commercial banks that then loan money to those firms.

We can think of the process of raising money in the securities markets in terms of the four-step process highlighted in Figure 2.2:

Step 1. **The firm sells securities to investors.** Corporations raise money in the securities markets by selling either debt or equity. When the firm initially sells the securities to the public it is considered to take place in the primary markets. This is the only time the firm receives money in return for its securities.

Step 2. **The firm invests the funds it raises in its business.** The corporation invests the cash raised in the security market in hopes that it will generate cash flows—for example, it may invest in a new restaurant, a new hotel, a factory expansion, or a new product line.

Step 3. **The firm distributes the cash earned from its investments.** The cash flow from the firm's investments is reinvested in the corporation, paid to the government in taxes, or distributed to the investors who own the securities issued in Step 1. In the latter case, the cash is distributed to the investors that loaned the firm money (that is, bought the firm's debt securities) through the payment of interest and principal. Cash is paid to the investors that bought equity (stock) through the payment of cash dividends or the repurchase of the shares of the firm's previously issued stock.

Step 4. **Securities trading in the secondary market.** Immediately after the securities are sold to the public, the investors who purchased them are free to resell them to other investors. These subsequent transactions take place in the secondary market.

Types of Securities

If you read the financial section of your newspaper or watch financial TV channels like CNBC, you are already aware of the wide variety of investment alternatives to choose from. These choices fall into one of two basic categories: debt and equity.

Debt Securities

Firms borrow money by selling **debt securities** in the debt market. If the debt must be repaid in less than a year, these securities are sold in the short-term debt market, also called the money market. If the debt has a **maturity** (the length of time until the debt is due) between one and ten years it is often referred to as a **note**, and longer than 10 years it is called a **bond** and is sold in the capital market. The capital market refers to the market for long-term financial instruments. The vast majority of these bonds pay a fixed interest rate, which means that the interest the owner of the bond receives never changes over its lifetime. Bonds are generally described using fairly exotic terminology. For example, we might say that a bond has a **face** or **par value** of $1,000 and that it pays an 8 percent **coupon rate** with two payments per year. What this means is that when the bond matures and the issuer (borrower) has to repay it, the owner of the bond (the lender) will receive a payment of $1,000. In the meantime, the holder will receive an interest payment every six months equal to $40, or $80 per year, which is 8% of $1,000.

Equity Securities

Equity securities represent ownership of the corporation. There are two major types of equity securities: *common stock* and *preferred stock*. When you buy equity security you are making an investment that you expect will generate a return. However, unlike a bond, which provides a promised set of interest payments and a schedule for the repayment of principal, the returns earned from an equity security are less certain. To further explore this topic, let's take a brief look at both types of equity securities.

Common Stock

Common stock is a security that represents equity ownership in a corporation, provides voting rights, and entitles the holder to a share of the company's success in the form of dividends and any capital appreciation in the value of the security. Investors who purchase common stock are the residual owners of the firm. This means that the common stockholder's return is earned only after all other security holder claims (debt and preferred equity) have been satisfied in full.

If you were to purchase 100 shares of Disney's common stock, you would be a part-owner in the company. In essence, you would own an interest in the firm's studios, a piece of its movies, and a piece of its theme parks, including the new park in Hong Kong. The more shares you buy, the bigger the portion of Disney you own. What do you get as an owner of Disney's stock? Don't count on free tickets to Disney World or a copy of the latest *Pirates of the Caribbean* movie. As an owner of the firm, you will have voting rights that entitle you to vote for the members of the firm's board of directors who oversee the selection of the management team. But as a small-time investor, you will have limited voting rights—your 100 shares of Disney's stock give you about 0.00000478% of Disney's shares. So, you aren't going to have much say about who gets elected to the Disney board of directors. Nonetheless, if Disney earns a profit, you will probably receive a portion of those profits in the form of a dividend payment. *It should be noted that unlike bond payments, firms don't have to pay dividends*. For example, if a company needs money to invest in a new product or project, it can choose to retain all of its earnings within the firm and pay no dividends.

Generally, firms that earn higher profits can pay higher dividends, and this often means that investors place a higher value on that firm's stock. For example, in 1999 the stock price of Qualcomm, a high-tech communications firm, went up 2,621 percent! However, when Qualcomm's profits and dividends, and people's expectations about its future prospects deteriorated, its stock price fell by 50% in 2000, another 26% in 2001, and then by another drop of 30% in 2002. This all goes to show that stock prices can fluctuate dramatically.

Preferred Stock

Preferred stock, like common stock, is an equity security. However, as the name implies, preferred stockholders take a "preferred" position relative to common shareholders. This means that preferred shareholders receive their dividends before any dividends are distributed to the common stockholders, who receive their dividends from whatever is left over. Note, however, that if the company does not earn enough to pay its interest expenses, neither preferred nor common stockholders will be paid a dividend. However, the dividends promised to the preferred stockholders will generally accrue and must be paid in full before common shareholders can receive any dividends. This feature is oftentimes referred to as a cumulative feature, and preferred stock with this feature is often referred to as cumulative preferred stock. In addition, preferred stockholders have a preferred claim on the distribution of assets of the firm in the event that the firm goes bankrupt and sells or liquidates its assets. Very simply, the firm's creditors (bondholders) get paid first, followed by the preferred stockholders, and anything left goes to the common stockholders. Of interest is that not all firms issue preferred stock.

Preferred stock is sometimes referred to as a hybrid security because it has many characteristics of both common stock and bonds. Preferred stock is similar to common stock in that (i) it has no fixed maturity date, (ii) the nonpayment of dividends does not bring on bankruptcy for the firm, and (iii) the dividends paid on these securities are not deductible for tax purposes. However, preferred stock is similar to corporate bonds in that (i) the dividends paid on the stock, like the interest payments made on bonds, are typically a fixed amount, and (ii) it does not come with any voting rights.

Stock Markets

A stock market is a public market in which the stock of companies is traded. Traditionally, the stock markets are classified as either organized security exchanges or the over-the-counter markets. **Organized security exchanges** are tangible entities; that is, they physically occupy space (such as a building or part of a building), and financial instruments are traded on their premises. The **over-the-counter markets** include all security markets except the organized exchanges. In the United States, the largest public market is the New York Stock Exchange (NYSE), whose history is traced back to 1792. Because it occupies a physical space (it is located at 11 Wall Street in Manhattan), it is considered an organized exchange. The common stock of more than three thousand listed companies is traded on this exchange, which has monthly trading volume that exceeds 4 billion shares! In addition, the total value of the shares of stock listed on the NYSE at the beginning of 2009 reached just over $10 trillion. As you might expect, the dramatic stock market slide in 2008 took a toll on this figure; in fact, it was down from its peak of over $18 trillion in 2007.

Today, the NYSE is a hybrid market, having qualities of both an organized exchange and an over-the-counter market, allowing for face-to-face trading between individuals on the floor of the stock exchange in addition to automated electronic trading. As a result, during times of extreme flux in the market, at the opening or close of the market, or on large trades, human judgment can be called upon to make sure that the trade is properly executed.

NASDAQ, which stands for National Association of Securities Dealers Automated Quotations, is an over-the-counter market and describes itself as a "screen-based, floorless market." NASDAQ was formed in 1971 and is actually home to the securities of more companies than the NYSE. In 2010 some 5,000 companies were listed on NASDAQ, after reaching a peak of 5,556 in 1996. It has become highly popular as the trading mechanism of choice of several fast-growth sectors in the United States, including the high-technology sector. The common stock of computer chip maker Intel (INTC), for example, is traded via the NASDAQ, as is that of Dell (DELL), Starbucks (SBUX), Whole Foods Market (WFMI), and Google.

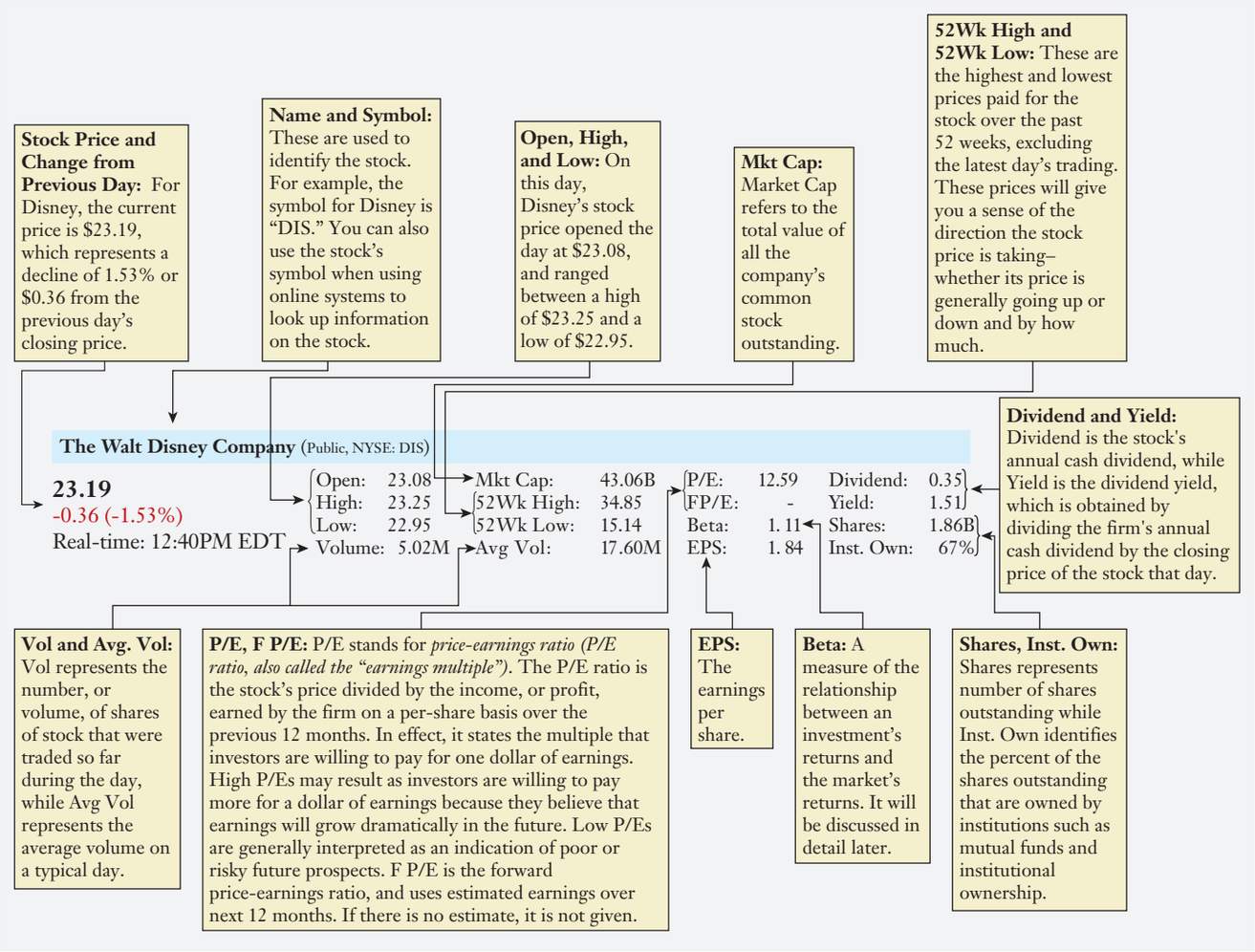
Reading Stock Price Quotes

Figure 2.3 illustrates how to read stock price quotes from www.google.com/finance. This is just a bit of the information available on Google Finance. You'll also find stock price charts,

Figure 2.3

Common Stock Price Quotes

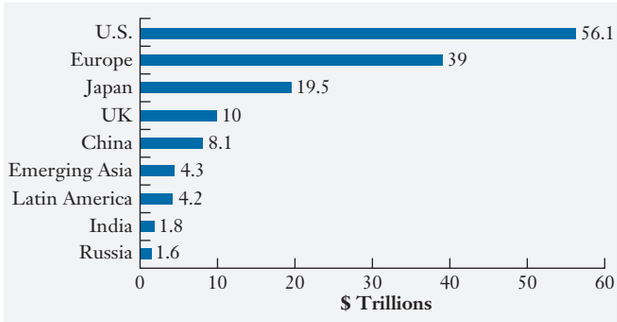
The following is typical of what you would see if you looked at www.google.com/finance.



>> END FIGURE 2.3

Finance in a **Flat World**

Where's the Money around the World



The following figure describes the total value of financial assets in the financial markets for each of the major regions of the world at the end of 2006. Although the totals change from year to year, these data provide some insight into the distribution of the value of financial assets around the world. For example, the U.S. financial markets made up 39% of the total, followed by Europe with 27%, Japan with 13%, and the UK with 7%. You may be surprised to see that the rapidly expanding Chinese market, at $8.1 trillion, constitutes only 6%, or less than half the total of the Japanese market.

Source: Diana Farrell, Susan Lund, Christian Folster, Raphael Bick, Moira Pierce, and Charles Atkins, McKinsey Global Institute, *Mapping Global Capital Markets: Fourth Annual Report*, January 2008. http://www.mckinsey.com/mgi/reports/pdfs/Mapping_Global/MGI_Mapping_Global_full_Report.pdf

Your Turn: See Study Question 2–10.

any news items, Internet discussion, information on related companies, and analyst estimates along with the firm's financial statements and key statistics and ratios. Similar information is given at finance.yahoo.com and *Wall Street Journal Online* (*www.wsj.com*) in the "Market Data Center" under the "U.S. Stocks" link.

Other Financial Instruments

So far we have touched on only the tip of the iceberg in terms of the variety of different types of financial instruments that are available to investors and firms. Table 2.2 provides a listing of a number of different financial instruments used by firms to raise money, beginning with the shortest maturity instruments that are traded in the money market and moving through the longest maturity securities that are traded in the capital market.

Before you begin end of chapter material

Concept Check | 2.3

1. What are debt and equity securities and how do they differ?
2. How is a primary market different from a secondary market?
3. How does common stock differ from preferred stock?
4. What is a mutual fund and how does it differ from an ETF?
5. How does a hedge fund differ from a mutual fund? A private equity firm?

Table 2.2 Characteristics of Different Financial Instruments

Money Market Debt

For the Borrower:

- Good way of inexpensively raising money for short periods of time.
- Rates tend to be lower than long-term rates.
- Can borrow money to match short term needs.
- If interest rates rise, the cost of borrowing will immediately rise accordingly.

For the Investor:

- Very Liquid—you have access to your money when you need it.
- Safe—generally invested in high quality investments for brief periods.
- Low Returns—rates tend to be close to the rate of inflation.

Instrument	Market	Major Participants	Riskiness	Original Maturity	Interest Rates*
U.S. Treasury bills	Money-Debt	Issued by U.S. Treasury	Default-free	4 weeks to 1 year	0.033% to 0.286%
Bankers' acceptances	Money-Debt	A firm's promise to pay, guaranteed by a bank	Low risk of default, dependent on the risk of the guaranteeing bank	Up to 180 days	0.22% to 0.36%
Commercial paper	Money-Debt	Issued by financially secure firms to fund operating expenses or current assets (e.g., inventories and receivables)	Low default risk	Up to 270 days	0.13% to 0.30%
Negotiable certificates of deposit (CDs)	Money-Debt	Issued by major money-center commercial banks with a denomination of at least $100,000 to large investors	Default risk depends on the strength of the issuing bank	2 weeks to 1 year	0.20% to 0.25%
Money market mutual funds	Money-Debt	Issued by mutual funds and invested in debt obligations like Treasury bills, CDs and commercial paper, held by individuals and businesses	Low degree of risk	No specific maturity date (can be redeemed any time)	0.88%
Consumer credit, including credit card debt	Money-Debt	Non-mortgage consumer debt issued by banks/credit unions/finance companies	Risk is variable	Varies	Variable depending upon the risk level

Long-Term Debt and Fixed Income Securities Market

For the Borrower:

- Interest rates are locked in over the entire life of the debt.
- Has a tax advantage over common stock in that interest payments are tax deductible while dividend payments are not.

For the Investor:

- Can be used to generate dependable current income.
- Some bonds produce tax-free income.
- Long-term debt tends to produce higher returns than short-term debt.
- Less risky than common stock.
- Investor can lock in an interest rate and know the future returns (assuming the issuer does not default on its payments).

(TABLE 2.2 CONTINUED >> ON NEXT PAGE)

Table 2.2 Characteristics of Different Financial Instruments *continued*

Instrument	Market	Major Participants	Riskiness	Original Maturity	Interest Rates*
U.S. Treasury notes and bonds	Capital-Debt	Issued by the U.S. government to mutual funds, businesses, individuals, and foreign countries	No default risk but price will decline if interest rates rise	Notes have original maturities of 2, 5, and 10 years; bonds have original maturities greater than 10 years	0.771% to 3.571%
Federal Agency debt	Capital-Debt	Issued by federal agencies (Fannie Mae, Ginnie Mae, and others) to businesses, individuals, and foreign countries	Close to Treasury debt, but not obligations of the federal government, still very low risk	Up to 30 years	3.88% to 9.50%
Mortgages	Capital-Debt	Borrowings from commercial banks and S&Ls by individuals	Risk is variable, with subprime mortgages having a good deal of risk	Up to 30 years	4.47% (15 yr. fixed) to 5.04% (30 yr. fixed)
Municipal Bonds (state and local government bonds)	Capital-Debt	Issued by state and local governments to individuals, institutional investors, and foreign countries	Riskier than U.S. government securities with the level of risk dependent upon the issuer, but exempt from most taxes	Up to 30 years	4.44% (30-year, AAA rated bonds)
Corporate bonds	Capital-Debt	Issued by corporations to individuals and institutional investors	Risk is dependent upon the financial strength of the issuer, riskier than U.S. government securities but less risky than preferred and common stocks.	In general up to 40 years, however Walt Disney and Coca-Cola have issued 100 year bonds	5.26% (10-year, AAA bonds)

Preferred Stock

For the Insuer:

- Dividends can be omitted without the risk of bankruptcy.
- Has the disadvantage that dividends are not tax deductible for the issuer, whereas interest payments from debt are tax deductible.

For the Investor:

- To corporate investors, it has a tax advantage since at minimum, 70 percent of dividends received are tax free.

Instrument	Market	Major Participants	Riskiness	Original Maturity	Interest Rates*
Preferred stocks	Capital-Equity (Preferred Stock)	Issued by corporations to individuals, other corporations, and institutional investors	While riskier than corporate bonds, less risky than common stock	No maturity date	Dependent upon risk, generally ranging from 5.5% to 9.5%

Common Stock

For the Issuer:

- The issuing firm is not legally obligated to make payments.
- Does not have a maturity date.
- Issuance of common stock increases creditworthiness because the firm has more investor money to cushion the firm in the case of a loss.
- Has a tax disadvantage relative to debt; while debt interest payments are deductible for tax purposes, common stock dividends are not.

For the Investor:

- Over the long run, common stock has outperformed debt-based financial assets.
- Along with the increased expected return comes increased risk.

Instrument	Market	Major Participants	Riskiness	Original Maturity	Interest Rates
Common stocks	Capital-Equity (Common Stock)	Issued by corporations to individuals, other corporations, and institutional investors	Risky, with dividends only paid when they are declared	No maturity date	Do not pay interest

* The yields were taken from online.wsj.com, **www.bloomberg.com**, research.stlouisfed.org, and **www.bankrate.com**, on February 8, 2010.

Applying the Principles of Finance to Chapter 2

P Principle 2: **There Is a Risk-Return Tradeoff** Financial markets are organized to offer investors a wide range of investment opportunities that have different risks and different expected rates of return that reflect those risks.

P Principle 4: **Market Prices Reflect Information** It is through the operations of the financial markets that new information is efficiently impounded in security prices.

Chapter Summary

2.1 Describe the structure and functions of financial markets. (pg. 20)

SUMMARY: Financial markets allocate the supply of savings in the economy to the individuals and companies that need the money. A primary market is a market in which new, as opposed to previously issued, securities are bought and sold for the first time. In this market firms issue new securities to raise money that they can then use to help finance their businesses. The key feature of the primary market is that the firms that raise money by selling securities actually receive the money.

The secondary market is where all subsequent trading of previously issued securities takes place. In this market the issuing firm does not receive any new financing, as the securities it has sold are simply being transferred from one investor to another. The principal benefit to investors of having a secondary market is the ease with which the investor can sell or liquidate investments.

KEY TERMS

Commercial bank, page 20 A financial institution that accepts demand deposits, makes loans, and provides other services to the public.

Defined benefit plans, page 20 A company retirement plan, such as a pension plan, in which a retired employee receives a specific amount based on his or her salary history and years of service.

Defined contribution plans, page 20 A company retirement plan, such as a 401(k) plan, in which the employee elects to contribute some amount of his or her salary into the plan and the employee takes responsibility for the investment decisions.

2.2 Distinguish between commercial banks and other financial institutions in the financial marketplace. (pgs. 20–25)

SUMMARY: Financial institutions are intermediaries that stand in the middle between borrowers that need money and savers who have money to invest. A wide variety of financial institutions have evolved over time to meet special needs for intermediation including commercial banks that accept deposits from savers and lend to borrowers, investment banks that help companies sell their securities to investors in order to raise the money they need, and many other institutions. Of particular interest are mutual funds that collect the investments of many small investors and invest the pool of funds in stocks, bonds, and other types of securities that are issued by businesses. In recent years two types of investment companies have captured the headlines. These include hedge funds and private equity funds. Both of these types of investment companies accept investments from other financial institutions or wealthy individuals and invest in speculative and risky ventures.

KEY TERMS

Accredited investor, page 24 Investors that are permitted to invest in certain types of higher risk investments. These investors include wealthy individuals, corporations, endowments, and retirement plans.

Capital market, page 21 The market for long-term financial instruments.

Credit default swap, page 23 An insurance contract which pays off in the event of a credit event such as default or bankruptcy.

Exchange-traded fund (ETF), page 24 An investment vehicle traded on stock exchanges much like a share of stock. The entity holds investments in assets that meet the investment objective of the entity (e.g., shares of stock of companies from emerging markets).

Financial intermediaries, page 20 Institutions whose business is to bring together individuals and institutions with money to invest or lend with other firms or individuals that need money.

Hedge fund, page 24 An investment fund that is open to a limited range of investors (accredited investors) and which can undertake a wider range of investment and trading activities than other types of investment funds that are open to the general public (e.g., mutual funds).

Investment bank, page 23 A financial institution that raises capital, trades in securities, and manages corporate mergers and acquisitions.

Investment companies, page 23 Firm that invests the pooled funds of retail investors for a fee.

Leveraged buyout fund, page 25 A private equity firm that raises capital from individual investors and uses these funds along with significant amounts of debt to acquire controlling interests in operating companies.

Load funds, page 24 Mutual funds that charge investors a sales commission called a "load".

Money market, page 21 The financial market for short-term debt securities (maturing in one year or less).

Mutual fund, page 24 A professionally managed investment company that pools the investments of many individuals and invests it in stocks, bonds, and other types of securities.

Net asset value (NAV), page 24 The difference between the current market value of an entity's (such as a mutual fund) assets and the value of its liabilities.

No-load fund, page 24 A mutual fund that doesn't charge a commission.

Private equity firms, page 24 Financial intermediary that invest in equities that are not traded on the public capital markets.

Venture capital firms, page 24 Investment companies that raise money from accredited investors and use the proceeds to invest in new start-up companies.

Concept Check | 2.2

1. Explain how individuals and firms use financial intermediaries to raise money in the financial markets.
2. How do commercial banks differ from other non-bank financial intermediaries?
3. What are examples of investment companies?
4. What is a hedge fund and how does it differ from a mutual fund?
5. What are the two principal types of private equity firms?

2.3 Describe the different securities markets for bonds and stock. (pgs. 26–30)

SUMMARY: When a corporation needs to raise large sums of money it generally turns to the public market for bonds if it borrows or equity if it seeks out new owner funds. The buyers of these securities include individual investors and investment companies such as mutual funds. The U.S. stock and bond markets are the largest and most active in the world. In some instances these markets are physical locations where buyers and sellers interact such as the New York Stock Exchange at 11 Wall Street, or they consist of an electronic market of interconnected computers such as NASDAQ.

KEY TERMS

Bond, page 27 A long-term (10-year or more) promissory note issued by a borrower, promising to pay the owner of the security a predetermined amount of interest each year.

Common stock, page 27 A form of equity security that represents the residual ownership of the firm.

Coupon rate, page 27 The amount of interest paid per year expressed as a percent of the face value of the bond.

Debt securities, page 27 Financial instruments that represent loans to corporations. Long-term debt securities are called bonds and can be bought and sold in the bond market.

Equity securities, page 27 Financial instruments that represent ownership claims on a business. Equity securities for corporations are called shares of stock and can be bought and sold in the stock market.

Face, or par value, page 27 On the faceof a bond, the stated amount that the firm is to repay on the materity date.

Maturity, page 27 The date when a debt must be repaid.

Notes, page 27 Another term used to refer to indebtedness. Notes generally have maturity between 1 and 10 years when originally issued.

Organized security exchanges, page 28 Security exchanges that physically occupy space (such as a building or part of a building) and trade financial instruments on their premises.

Over-the-counter markets, page 28 All security markets except the organized exchanges.

Preferred stock, page 28 An equity security that holds preference over common stock in terms of the right to the distribution of cash (dividends) and the right to the distribution of proceeds in the event of the liquidation and sale of the issuing firm.

Primary market, page 26 A part of the financial market where new security issues are initially bought and sold.

Secondary market, page 26 The financial market where previously issued securities such as stocks and bonds are bought and sold.

Security, page 26 A negotiable instrument that represents a financial claim that has value. Securities are broadly classified as debt securities (bonds) and equity securities (shares of common stock).

Concept Check | 2.3

1. What are debt and equity securities and how do they differ?
2. How is a primary market different from a secondary market?
3. How does common stock differ from preferred stock?
4. What is a mutual fund and how does it differ from an ETF?
5. How does a hedge fund differ from a mutual fund? A private equity firm?

Study Questions

2–1. **(Related to Regardless of Your Major: Defined Benefit vs. Defined Contribution Retirement Plans on page 20)** In the *Regardless of Your Major* box feature two types of pension plans were discussed. Describe each. Which type is now the dominant type in use?

2–2. What are the three principal sets of players that interact in the financial markets?

2–3. What is a financial intermediary? List and describe the principal types of financial intermediaries in the U.S. financial markets.

2–4. What do investment banks do in the financial markets?

2–5. Describe the difference between the primary market and the secondary market.

2–6. What is a mutual fund and how does it differ from an exchange-traded fund (ETF)?

2–7. What is the difference between a debt security and an equity security?

2–8. What makes preferred stock "preferred"?

2–9. **(Related to The Business of Life: Controlling Costs in Mutual Funds on page 25)** In *The Business of Life: Controlling Costs in Mutual Funds,* the importance of keeping expenses down is discussed. The Financial Industry Regulatory Authority website provides an easy way to compare two mutual funds. Go to the website, http://apps.finra.org/fundanalyzer/1/fa.aspx, then enter Vanguard 500 Index Fund Investor Class (you will enter the ticker symbol VFINX), Hillman Advantage Equity Fund Class A (enter the ticker symbol HAEAX), and Frontier MicroCap Fund (FEFPX). Now, click on show results. Set your investment at $10,000, your return at 8%, and your period at 10 years. What is your profit or loss? Why do you think there is such a big difference? (Think expenses and fees.)

2–10. **(Related to Finance in a Flat World: Where's the Money around the World on page 30)** We learned about the distribution of financial assets around the world in the *Finance in a "Flat" World* box feature. What percent of the world's financial assets (for the year reported) were represented by the U.S. financial market? What percentages were represented by Europe, Japan, and the UK?

2–11. What is a hedge fund, and how is it different from a mutual fund?

2–12. What are the two types of private equity funds? What does each do with the money it raises from investors?

2–13. Go to Yahoo! Finance (*http://finance.yahoo.com*) and enter the symbol for Google (GOOG) in the "Enter Symbol(s)" box at the top of the page. What price did it last trade at? What is the last trade time and how long ago was that? What is the day's price range for the stock? What is the closing change in the price of the stock, both in dollar and percentage terms? What is the stock's 52-week price range? Now check out some of the links on the left hand side of the page. What kind of information listed there do you find interesting?

2–14. Go to the CNN-Money website (*http://money.cnn.com*) and visit the retirement section by clicking on "Personal Finance" on the top banner. From there, click on "Retirement." You'll find all kinds of interesting articles under this link. (But be forewarned: Some are a bit scary. Saving for retirement is not an easy task.) Write up a summary of any one of the articles listed there.

2–15. Go to the CNN-Money website (*http://money.cnn.com*) and go to the Personal Finance section by clicking on "Personal Finance" on the top banner. This is a great website for information and help in managing your personal finances. Find an article you like, read it, and write a summary of it. Also, consider bookmarking this website—it's one you might want to start visiting on a regular basis.

2–16. Calculate the value of the total shareholder wealth for Google, Inc. using the number of common shares outstanding and the current price of the firm's shares. You can obtain the necessary information from the Yahoo! Finance website.

2–17. Go to the Smartmoney.com website (*http://www.smartmoney.com*) and select the tab titled "Investing, Personal Finance." What are the "Breaking News" stories of the day? Select one of the stories and prepare a brief summary to share with the class.

2–18. Go to the Motley Fool website (*www.fool.com*) and select the Retirement tab. Describe the information available here for planning for your retirement.

CHAPTER 3

Understanding Financial Statements, Taxes, and Cash Flows

Chapter **Outline**

Principles P 1, P 3, and P 4 Applied

In Chapter 3 we apply P Principle 1: **Money Has a Time Value**, P Principle 3: **Cash Flows Are the Source of Value** and P Principle 4: **Market Prices Reflect Information**. Financial statements are prepared in accordance with a set of accounting principles that drive a wedge between reported statement figures, present values, and cash flows but we can determine the cash flow implications for the firm from its reported financial statements. It is critical that we learn how to do this. Moreover, we learn that the firm's financial statements do contain information that can be important to the formation of investor expectations concerning the firm's future performance and, consequently, market prices.

In the summer of 1969, Don and Doris Fisher got so frustrated looking for a good pair of jeans in San Francisco that they decided to do something about it. They opened their own store called the Generation Gap, which sold Levi's jeans and record albums. The Generation Gap was an immediate hit, becoming a prime counterculture shopping spot. By 1976, The Gap, Inc. (GPS), as it is now known, had expanded to over 200 stores and its shares were trading on the New York Stock Exchange.

Until the late 1990s, it seemed that The Gap could do no wrong. The firm owned Old Navy and the Banana Republic. Sales just kept on climbing. But if we examine The Gap's financial statements, we can spot some alarming signs. Same-store sales were declining and the number of Gap stores had been cut in half. The Gap's common stock price dropped from a high of $51 in 1999 to less than $10 a share in the spring of 2009. Financial statements report information important to the valuation of the firm's stock (remember **Principle 4: Market Prices Reflect Information**), so it behooves both managers and investors to study them carefully.

This is the first of two chapters that focus on accounting and, specifically, financial statements. Because this isn't an accounting book, you might be asking yourself (or your teacher) "why we are spending so much time delving into financial statements?" The answer is simply that *accounting is the language of business*. When firms communicate with their stockholders and creditors, the principal form of communication is through the firm's financial statements. Moreover, when managers communicate with their fellow employees about the firm's performance, they often do so using benchmarks that are based on accounting profits.

In Chapter 3, we review the basic financial statements used by firms to report their financial performance. These financial statements can be viewed as a model or representation of the firm at a particular point in time. We first investigate why both a student of finance and a manager need to understand financial statements as well as the basic accounting principles that underlie their construction.

Regardless of Your Major...

"Accounting Is the Language of Business"

A firm's statements provide a visual representation of the firm that is used to describe the business to investors and others outside of the firm as well as to the firm's employees. Consequently, we can think of a firm's financial statements and the various terms used to describe the firm and its operations as the language of business. As such, everyone who becomes a manager, no matter what their area of expertise, needs to know how to "speak business," and this means knowing how to read and interpret your financial statements. For example, when the firm communicates with its banker or the investment analysts who follow the firm's common stock, financial statement results provide the common language. When the firm's top management is determining the bonuses to pay at year-end they look to the firm's financial performance as reflected in the financial statements. Moreover, progressing up the ranks of the firm's management team requires that you develop a broader understanding of the firm and how each of its components fit together. The firm's financial statements provide the key to gaining this knowledge.

3.1 An Overview of the Firm's Financial Statements

In Chapter 2, we looked at the world of business through the eyes of an investor using security prices from financial markets. In this chapter, we look at the firm from the perspective of the financial analyst by reviewing the firm's financial statements, including the income statement, balance sheet, and cash flow statement. Understanding the financial health of a business by reviewing its financial statements is also important to the financial manager whose goal is to determine how to increase the value of the firm.

Basic Financial Statements

The accounting and financial regulatory authorities mandate the following four types of financial statements:

1. **Income statement—**includes the revenue the firm has earned *over a specific period of time*, usually a quarter of a year or a full year; the expenses it has incurred during the year to earn its revenues; and the profit the firm has earned.
2. **Balance sheet—**contains information as of the date of its preparation about the firm's assets (everything of value the company owns); liabilities (the firm's debts); and shareholders' equity (the money invested by the company owners). As such the balance sheet is a snapshot of the firm's assets, liabilities, and owners' equity for a particular date.
3. **Cash flow statement—**reports cash received and cash spent by the firm *over a specified period of time*, usually one quarter of a year or a full year.
4. **Statement of shareholders' equity—**provides a detailed account of the firm's activities in the common and preferred stock accounts, the retained earnings account, and changes to owners' equity that do not appear in the income statement.

In this chapter we review the basic content and format of the income statement, balance sheet, and cash flow statement. We do not discuss the statement of shareholders' equity, since the information we need from this statement can be obtained from the income statement and balance sheet.

Why Study Financial Statements?

Analyzing a firm's financial statements can help managers carry out three important tasks: assess current performance, monitor and control operations, and plan and forecast future performance.

1) **Financial statement analysis.** The basic objective of financial statement analysis is to *assess* the financial condition of the firm being analyzed. In a sense, the analyst performs a financial analysis so he or she can see the firm's financial performance the same way an outside investor would see it. In Chapter 4 we delve into the tools and techniques used in carrying out financial statement analysis.
2) **Financial control.** Managers use financial statements to monitor and control the firm's operations. The performance of the firm is reported using accounting measures that compare the prices of the firm's products and services with the estimated cost of providing them to buyers. Moreover, the board of directors uses these performance measures to determine executives' bonuses. The company's creditors also use performance measures based on the firm's financial statements to determine whether or not to extend the company's loans. For example, a common restriction included in loan agreements prohibits firms from borrowing more than a specific percentage of their total assets as reflected in the firm's financial statements.
3) **Financial forecasting and planning.** Financial statements provide a universally understood format for describing a firm's operations. Consequently, financial planning models are typically built using the financial statements as a prototype. We address financial planning in Chapter 17.

This chapter focuses on **Principle 3: Cash Flows Are the Source of Value**. A key issue that we will discuss is the distinction between the earnings numbers that the firm's accountants calculate and the amount of cash that a firm generates from its various lines of business. This difference is a primary source of differentiation between the study of finance and the study of accounting. For example, firms can earn positive accounting earnings while hemorrhaging cash, and can generate positive cash flow while reporting accounting losses. So, a key objective for the financial manager in this chapter involves developing a good understanding of accounting earnings and how they relate to cash flows.

What Are the Accounting Principles Used to Prepare Financial Statements?

Accountants use three fundamental principles when preparing a firm's financial statements: the revenue recognition principle, the matching principle, and the historical cost principle. Understanding these principles is critical to a full and complete understanding of how and what information is reported in a firm's financial statements. Much of the accounting fraud that has occurred in the United States can be traced back to violations of one or more of these basic principles of accounting.

1) **The revenue recognition principle.** This principle provides the basis for deciding what **revenue**—the cumulative dollar amount of goods and services the firm sold to its customers during the period—should be reported in a particular income statement. The principle states that revenue should be included in the firm's income statement for the period in which (1) its goods and services were exchanged for either cash or **accounts receivable** (credit sales that have not yet been collected), or (2) the firm has completed what it must do to be entitled to the cash. As a general rule, a sale can be counted only when the goods sold leave the business's premises in route to the customer. The revenue recognition principle guides accountants when it is difficult to determine whether revenues should be reported in one period or another.
2) **The matching principle.** This principle determines what costs or expenses can be attributed to this period's revenues. Once the firm's revenues for the period have been determined, its accountants then determine the expenses for the period by letting the expenses "follow" the revenues, so to speak. For example, employees' wages aren't recognized

when the wages are paid, or when their work is performed, but when the product produced as a result of that work is sold. Therefore, expenses are matched with the revenues they helped to produce.

3) **The historical cost principle.** This principle provides the basis for determining the dollar values the firm reports in the balance sheet. Most assets and liabilities are reported in the firm's financial statements on the basis of the price the firm paid to acquire them. This price is called the asset's historical cost. This may or may not equal the price the asset might bring if it were sold today. (Usually it does not.)[1]

Remembering these three principles will help you understand what you see in the firm's financial statements and why it is reported that way. Furthermore, having a basic understanding of accounting principles will make you a much more informed user of accounting information and a much better financial analyst.

Before you move on to 3.2

Concept Check | 3.1

1. Name the four basic financial statements that make up the published financial reports of a firm and describe the basic function of each.
2. What are the three uses of a firm's financial statements for the firm's management?
3. Describe the revenue recognition, matching, and historical cost principles as they are applied in the construction of a firm's financial statements.

3.2 The Income Statement

An **income statement**, also called a *profit and loss statement*, measures the amount of profits generated by a firm over a given time period (usually a year or a quarter). In its most basic form, the income statement can be expressed as follows:

$$\text{Revenues (or Sales)} - \text{Expenses} = \text{Profits} \qquad \textbf{(3–1)}$$

Revenues represent the sales for the period. **Profits** are the difference between the firm's revenues and the expenses the firm incurred in order to generate those revenues for the period. Recall that revenues are determined in accordance with the revenue recognition principle and expenses are then matched to these revenues using the matching principle.

Income Statement of H. J. Boswell, Inc.

The typical format for the income statement is shown in Table 3.1 for H. J. Boswell, Inc., a fictitious firm we will use as an example throughout this chapter and Chapter 4. Boswell is a well-known manufacturer of orthopedic devices and supplies. Its products include hip replacement supplies; knee, shoulder, and spinal implants; products used to fix bone fractures; and operating room products.

Reading and Interpreting Boswell's Income Statement

Recall from Equation (3–1) that the income statement contains three basic elements: revenues, expenses, and profits. We will use these elements to analyze each of the components of the income statement found in Table 3.1:

1. **Revenues—**Boswell's revenues totaled $2,700 million for the 12-month period ended December 31, 2010.

[1]There are exceptions to the historical cost principle for recording asset values on the firm's balance sheet. A prime example involves the firm's cash and marketable securities portfolio. These assets are recorded on the balance sheet using the lesser of cost or their current market value. Changing the value of the firm's cash and marketable securities to reflect current market prices is commonly referred to as "marking to market." However, the historical cost principle is the guiding rule for determining the value to be recorded on the balance sheet in most cases.

Table 3.1 **H. J. Boswell, Inc.**

Income Statement (expressed in millions, except per share data)
for the Year Ended December 31, 2010

Sales		$ 2,700.00
Cost of goods sold		(2,025.00)
Gross profits		$ 675.00
Operating expenses:		
Selling expenses	$ (90.00)	
General and administrative expense	(67.50)	
Depreciation and amortization expense	(135.00)	
Total operating expense		(292.50)
Net operating income (EBIT or earnings before interest and taxes)		$ 382.50
Interest expense		(67.50)
Earnings before taxes		$ 315.00
Income taxes		(110.25)
Net income		$ 204.75
Additional information:		
Dividends paid to stockholders during 2010		$ 45.00
Number of common shares outstanding		90.00
Earnings per share (EPS)		$ 2.28
Dividends per share		$ 0.50

2. **Cost of Goods Sold—**Next we see that the various expenses the firm incurred in producing revenues are broken down into various sub-categories. For example, the firm spent $2,025 million on **cost of goods sold,** the cost of producing or acquiring the products or services that the firm sold during the period.
3. **Gross Profit—**Subtracting cost of goods sold from revenues produces an estimate of the firm's gross profit of $675 million.
4. **Operating Expenses—**Next, we examine Boswell's operating expenses (this includes the salaries paid to the firm's administrative staff, the firm's electric bills, and so forth). One of the operating expense categories is depreciation expense ($135 million for Boswell in 2010). **Depreciation expense** is a non-cash expense used to allocate the cost of the firm's long-lived assets (like its plant and equipment) over the useful lives of the assets. For example, suppose that, during 2010, Boswell was to build a new distribution facility in Temple, Texas that costs $10 million. The firm would not expense the full $10 million against 2010 revenues, but instead would spread out the costs over many years to match the revenues the facility helped create.[2]
5. **Net Operating Income—**After deducting $292.50 million in operating expenses, Boswell's *net operating income* is $382.50 million. The firm's **net operating income** shows us the firm's ability to earn profits from its ongoing operations—before it makes interest payments and pays its taxes. For our purposes net operating income will be synonymous with **earnings before interest and taxes** or **EBIT**.
6. **Interest Expense—**To this point, we have calculated the profits resulting only from operating the business, without regard for any financing costs, such as the interest paid on money the firm might have borrowed. In this instance Boswell incurred interest expense equal to $67.50 million during 2010.

[2]Although there are many types of depreciation methods that can be used, we restrict our attention in this chapter to a simplified version of straight-line depreciation (e.g., we ignore the half-year convention). Using this method, the total cost of the asset minus any salvage value is divided by the number of years of useful life to calculate annual depreciation. For example, if a piece of equipment is purchased for $125,000 and has a $25,000 salvage value at the end of its 5-year useful life, then the annual straight-line depreciation is calculated as follows: ($125,000 − $25,000) / 5 years = $20,000. In Chapter 12 we discuss the Modified Accelerated Cost Recovery System (MACRS), which is the current method required by the IRS for computing accelerated depreciation.

7. **Earnings before Taxes—**Now we can subtract Boswell's interest expense of $67.50 million from its operating income of $382.50 million to determine its earnings before taxes (also known as taxable income). Boswell's earnings before taxes are $315 million.
8. **Income Taxes—**Next, we determine the firm's income tax obligation. We will show how to calculate the tax obligation later in this chapter. For now, note that Boswell's income tax obligation is $110.25 million.
9. **Net Income—**The income statement's bottom line is **net income**, which is calculated by subtracting the firm's tax liability of $110.25 million from its earnings before taxes of $315 million. This leaves net income of $204.75 million.

Evaluating Boswell's per Share Earnings and Dividends

At this point, we have completed the income statement. However, the firm's owners (common stockholders) will want to know how much income the firm made on a per share basis, or what is called **earnings per share**. We can calculate earnings per share by dividing the company's net income by the number of common shares it has outstanding. Because H. J. Boswell, Inc. had 90 million shares outstanding in 2010 (see Table 3.1), its earnings per share were $2.28 ($2.28 per share = $204.75 million net income ÷ 90 million shares).

Investors also want to know the amount of dividends a firm pays for each share outstanding, or the **dividends per share**. In Table 3.1 we see that H. J. Boswell, Inc. paid $45 million in dividends during 2010. You can then determine that the firm paid $0.50 in dividends per share ($0.50 = $45 million total dividends ÷ 90 million shares outstanding).

Connecting the Income Statement and Balance Sheet

If Boswell earned net income of $204.75 million (or $2.28 per share) and paid out only $45 million in dividends ($0.50 in dividends per share), what happened to the $204.75 million − 45 million = $159.75 million in earnings that were not paid out in dividends? The answer is that this amount was retained and reinvested in the firm. As we will later discuss, in the balance sheet Boswell's retained earnings rise by exactly this amount. Thus the income statement feeds directly into the balance sheet to record any profit or loss from the firm's operations for the period.

Interpreting Firm Profitability Using the Income Statement

The first conclusion we can draw from our quick survey of H. J. Boswell, Inc.'s income statement is that the firm was profitable because its revenues for 2010 exceeded the sum of all its expenses. Furthermore, as we move down the income statement beginning with the firm's revenues or sales, we can identify three different measures of profit or income. For example, the company's gross profit was $675 million, while its operating income—or earnings before interest and taxes—was just $382.5 million, and its net income was just $204.75 million. It is common practice to divide gross profit, operating income, and net income by the level of the firm's sales to calculate the firm's *gross profit margin*, *operating profit margin*, and the *net profit margin*, respectively. For H. J. Boswell, Inc., we calculate each of these profit margins as follows:

1) The *gross profit margin* is 25% ($675 million of gross profits ÷ $2,700 million of sales = 25%). Since the gross profit equals revenues minus the firm's cost of goods sold, the **gross profit margin** indicates the firm's "mark-up" on its cost of goods sold per dollar of sales. Note that the percent markup is generally expressed as a percentage of the firm's cost of goods sold. That is, the mark-up percentage equals gross profit divided by cost of goods sold or $675 million ÷ $2,025 million = 33.3%. Since gross profit is 25% of sales and cost of goods is 75% of sales, we can also compute the mark-up percentage using these percentages, i.e., 25% ÷ 75% = 33.3%.

2) The *operating profit margin* is only 14.2% ($382.5 million of net operating income ÷ $2,700 million of sales = 14.2%). The **operating profit margin** is equal to the ratio of net operating income or earnings before interest and taxes (EBIT) divided by firm sales.

3) The *net profit margin* is only 7.6% of firm revenues (7.6% = $204.75 million of net profits ÷ $2,700 million of sales). The **net profit margin** captures the effects of all the firm's expenses and indicates the percentage of revenues left over after interest and taxes have been considered.

Notice that as we move down the income statement, calculating different profit margins after incorporating consideration for more categories of expenses, the successive profit margins naturally get smaller and smaller. By comparing these margins to similar businesses, we can dissect a firm's performance and identify expenses that are out of line. Because the firm's profit margins are an important indicator of how well the firm is doing financially, managers pay close attention to them, carefully watching for any changes either up or down. They also compare the firm's margins with those of their competitors—something we will discuss in Chapter 4.

GAAP and Earnings Management

In the United States firms must adhere to a set of accounting principles commonly referred to as Generally Accepted Accounting Principles, or GAAP.[3] Even so, there is considerable room for a company's managers to actively influence the firm's reported earnings. Corporate executives have an incentive to manage the firm's earnings, both because their pay depends upon earnings and because investors pay close attention to the firm's quarterly earnings announcements. Executives sometimes "smooth" out reported earnings, by making choices that, for example, transfer earnings from years when they are abnormally high to future years when earnings would otherwise be low. The specifics of how this is done can be very complex and are beyond the scope of this book.[4] However, in extreme cases, earnings management can lead to fraudulent efforts to create earnings where none exist.

Checkpoint 3.1

Constructing an Income Statement

Use the following information to construct an income statement for Gap, Inc. (GPS). The Gap is a specialty retailing company that sells clothing, accessories, and personal care products under the Gap, Old Navy, Banana Republic, Piperlime, and Athleta brand names. Use the scrambled information below to calculate the firm's gross profits, operating income, and net income for the year ended January 31, 2009. Calculate the firm's earnings per share and dividends per share.

Interest expense	$1,000,000	Revenues (Sales)	$14,526,000,000
Cost of goods sold	$9,079,000,000	Common stock dividends	$243,000,000
Operating expenses	$3,899,000,000	Income taxes	$617,000,000
Shares outstanding	716,296,296		

STEP 1: Picture the problem

The income statement can be visualized as a mathematical equation using Equation (3–1) as follows:

$$\text{Revenues} - \text{Expenses} = \text{Profits} \qquad (3\text{–}1)$$

(3.1 CONTINUED >> ON NEXT PAGE)

[3]GAAP represents the compilation of a voluminous set of standards that guide the construction of the firm's financial statements. These standards are set by governmental entities such as the Securities and Exchange Commission and the Accounting Oversight Board, as well as by industry groups from the accounting profession, including the American Institute of Certified Public Accountants.

[4]If you want to learn more about this and other tools of earnings management (i.e., manipulation) see Howard M. Schilit, *Financial Shenanigans: How to Detect Accounting Gimmicks & Fraud in Financial Reports*, 2nd ed. (McGraw-Hill, 2002).

However, this equation belies the level of detail normally included in the income statement. That is, expenses are typically broken down into multiple categories including cost of goods sold, operating expenses (including such things as selling expenses, administrative expenses, and depreciation expenses), finance charges or expenses (interest), and income taxes. After subtracting each of these general categories of expenses a new profit number is calculated. The following template provides a useful guide for reviewing the format of the income statement:

Revenues

Less: Cost of Goods Sold

Equals: Gross Profit

Less: Operating Expenses

Equals: Net Operating Income

Less: Interest Expense

Equals: Earnings before Taxes

Less: Income Taxes

Equals: Net Income

STEP 2: Decide on a solution strategy

Given the account balances provided, constructing the income statement simply entails substituting the appropriate balances into the template found above.

STEP 3: Solve

Revenues = **$14,526,000,000**

Less: Cost of Goods Sold = $9,079,000,000

Equals: Gross Profit = $5,447,000,000

Less: Operating Expenses = $3,899,000,000

Equals: Net Operating Income = $1,548,000,000

Less: Interest Expense = $1,000,000

Equals: Earnings before Taxes = $1,547,000,000

Less: Income Taxes = $617,000,000

Equals: Net Income = $930,000,000

Earnings per share ($930,000,000 net income ÷ 716,296,296 shares) = **$1.30**
Dividends per share ($243,000,000 dividends ÷ 716,296,296 shares) = **$0.34**

STEP 4: Analyze

There are some important observations we can make about Gap's income statement. First, the firm is profitable since it earned net income of $930,000,000 over the year ended January 31, 2009. Second, the firm earned more net income than they distributed to their shareholders in dividends.

STEP 5: Check yourself

Reconstruct Gap's income statement assuming the firm is able to cut its cost of goods sold by 10% and that the firm pays taxes at a 40% rate. What is the firm's net income and earnings per share?

ANSWER: $1,472,940,000 and $2.06.

Your Turn: For more practice, do related **Study Problem** 3–1 at the end of this chapter.

>> END Checkpoint 3.1

Before you move on to 3.3

Concept Check | 3.2

1. What information can we derive from a firm's income statement?
2. List the entries in the income statement.
3. What does the acronym GAAP stand for?

Corporate Taxes

In our discussion of the income statement we simply listed the firm's income tax obligation without further explanation. It is important that the financial manager understand how taxes are computed, since taxes are a critical factor in determining cash flow (**Principle 3: Cash Flows Are the Source of Value**) and consequently in making many financial decisions. The tax rules can be extremely complex, requiring specialized expertise to understand them, so for our purposes we will provide a simplified overview of how corporate income taxes are computed.

Computing Taxable Income

A corporation's **taxable income** is often referred to in its income statement as *earnings before taxes*. Earnings before taxes are equal to the firm's net operating income less interest expenses. Note that taxable income was item 7 in our earlier description of the firm's income statement. The firm's income tax liability is calculated using its taxable income and the tax rates on corporate income, which we will now discuss.

Federal IncomeTax Rates for Corporate Income

For 2010 the corporate income tax rates in the United States were as follows:

Taxable Income	Marginal Tax Rate
$0–$50,000	15%
$50,001–$75,000	25%
$75,001–$100,000	34%
$100,001–$335,000	39%
$335,001–$10,000,000	34%
$10,000,001–$15,000,000	35%
$15,000,001–$18,333,333	38%
Over $18,333,333	35%

Notice that corporate tax rates increase for taxable income up to $335,000, then drop back and plateau at 35% for taxable income of $18,333,333 and higher. This means that large corporations pay taxes at the 35% tax rate, and smaller firms with before-tax income up to $100,000 per year face tax rates ranging from 15% up to 34%.

Note that to this point we have only discussed federal income taxes. Many states and even cities have their own income taxes that also are necessary to consider in computing a firm's after-tax net income. However, the possible tax consequences brought by these added tax jurisdictions are beyond the scope of this book.

Marginal and Average Tax Rates

When firms analyze the tax consequences of a new business venture it is important that they use the proper tax rate in their analysis. The appropriate rate is the **marginal tax rate**, which is the tax rate that the company will pay on its next dollar of taxable income.

Consider the income tax liability of a firm with $100,000 in taxable income:

Taxable Income	Marginal Tax Rate	Tax Liability	Cumulative Tax Liability	Average Tax Rate
$ 50,000	15%	$7,500	$ 7,500	15.00%
75,000	25%	6,250	13,750	18.33%
100,000	34%	8,500	22,250	22.25%

The firm's $100,000 in earnings before taxes results in a total tax liability of $22,250. As a result, the firm's **average tax rate** on $100,000 in taxable income is $22,250 ÷ $100,000 or 22.25%. However, if the firm earns a dollar more than $100,000, then the marginal tax rate jumps from 34% to 39%. So the firm's marginal tax rate would be 39%.

The reason the marginal corporate tax rate jumps up to 39% for taxable income of $100,001 to $335,000, and then falls to 34% before eventually rising to 38%, is to make sure that firms that have very high taxable income don't benefit from the lower rates on the initial dollars that they earn. As a result, if a firm earns between $335,001 and $10 million, both its marginal and average tax rates are 34%, while if a firm earns over $18 1/3 million, both its marginal and average tax rates are 35%. In order to simplify our tax calculations throughout the balance of the text we will assume that firms pay a single tax rate of 35%, which is the rate for large corporations.

Dividend Exclusion for Corporate Stockholders

For corporate stockholders, the dividends received are at least partially exempt from taxation. The rationale behind the exclusion is to avoid double taxation (i.e., taxes are paid on corporate income before dividends are paid and, if these dividends were subjected to taxation as part of the taxable income of the receiving corporation, they would effectively be taxed twice at the corporate level). However, not all the dividends received by the corporation are excluded from taxes. A corporation that owns less than 20% of the stock in another company can exclude 70% of the dividends received from its taxable income. When between 20% and 79% of the stock of another company is owned, 75% of the dividends received from that firm can be excluded from taxation. When 80% or more of another company's stock is owned, then all of the dividends received from that firm can be excluded from taxation. Note that dividend exclusion is not applicable to individual investors.

To illustrate the dividend exclusion, consider a situation in which Firm A receives $100,000 in dividends from Firm B. The dividend exclusion and taxable income under each of the possible scenarios listed previously are as follows:

Ownership Interest	Dividend Exclusion	Dividend Income	Taxable Income
Less than 20%	70%	$100,000	$30,000
20% to 79%	75%	$100,000	$25,000
80% or more	100%	$100,000	$0

If Firm A owns less than 20% of Firm B's shares, then it pays tax on only 30% of the dividends it receives, since it gets a 70% dividend exclusion; whereas if Firm A owns 80% or more of Firm B's shares, then it gets a 100% dividend exclusion and pays no taxes on the $100,000 in dividend income.

Before you move on to 3.4

Concept Check | 3.3

1. What is the difference between average and marginal tax rates?
2. What is the marginal tax rate for a firm that currently earns $75,000 in earnings before taxes and expects to earn $80,000 next year?
3. How are dividends received by corporations taxed?

3.4 The Balance Sheet

The income statement reports the cumulative results from operating the business over a period of time, such as one year. By contrast, the **balance sheet** is a snapshot of the firm's financial position on a specific date. In its simplest form, the balance sheet is defined by the following equation:

$$\text{Total Assets} = \text{Total Liabilities} + \text{Total Shareholders' Equity} \quad \textbf{(3–2)}$$

Total liabilities represent the total amount of money the firm owes its creditors (including the firm's banks and suppliers). **Total shareholders' equity** refers to the difference in the value of the firm's total assets and the firm's total liabilities recorded in the firm's balance sheet. As such, total shareholders' equity refers to the book value of their investment in the firm, which includes both the money they invested in the firm to purchase its shares and the accumulation of past earnings from the firm's operations. The sum of total shareholders' equity and total liabilities is equal to the firm's **total assets**, which are the resources owned by the firm.

In general, GAAP requires that the firm report assets on its balance sheet using the historical cost of acquiring them. Cash and assets held for resale (such as marketable securities) are an exception to the historical cost principle. These assets are reported in the balance sheet using the lower of their cost or their current **market value**, which is the price that an asset would trade for in a competitive market. Assets whose value is expected to decline over time as they are used, such as plant and equipment, are adjusted downward periodically by depreciating the historical cost. Consequently, the amount recorded on the firm's balance sheet for **net plant and equipment** is equal to the historical cost incurred when the assets were purchased less the depreciation accumulated on them. Note that this book value is not intended to measure the market value of these assets. In fact, book and market values of plant and equipment can differ dramatically. It is important to note that depreciation expense, and consequently the recorded book value of the firm's net plant and equipment, does not account for **Principle 1: Money Has a Time Value**. We will have more to say about this later when we discuss capital-budgeting decisions in Chapters 11–14.

In summary, the balance sheet contains the book value of the firm's assets. Generally the book value is not equal to the current market value of the firm's assets: consequently book value does not reflect the value of the company if it were to be sold to another owner or liquidated by selling off the individual assets it owns. This distinction between accounting or book value, and market value, is important for understanding the different perspectives taken with respect to a firm's financial statements by accountants and finance professionals. The accounting approach is to count or "account" for the firm's past actions, whereas the financial manager seeks to understand the implications of the financial statements for future cash flows and the value of the firm.

The Balance Sheet of H. J. Boswell, Inc.

Consider the 2009 and 2010 balance sheets for H. J. Boswell, Inc. found in Table 3.2. At the end of 2010, Boswell owned $1,971 million in total assets, had debts totaling $1,059.75 million, and had total common shareholders' equity of $911.25 million.

Assets: The Left-Hand Side of the Balance Sheet

The left-hand side of Boswell's balance sheet lists the firm's assets, which are categorized into current and fixed assets. The distinction between current and fixed assets is simply the time it takes for them to be converted to cash.

Table 3.2 H. J. Boswell, Inc.

Balance Sheet ($ millions)
December 31, 2009 and 2010

Assets			Liabilities and Owners' Equity		
	2009	2010		2009	2010
Cash	$ 94.50	$ 90.00	Accounts payable	$ 184.50	$ 189.00
Accounts receivable	139.50	162.00	Accrued expenses	45.00	45.00
Inventory	229.50	378.00	Short-term notes	63.00	54.00
Other current assets	13.50	13.50	Total current liabilities	$ 292.50	$ 288.00
Total current assets	$ 477.00	$ 643.50	Long-term debt	720.00	771.75
Gross plant and equipment	1,669.50	1,845.00	Total liabilities	$1,012.50	$1,059.75
Less accumulated depreciation	(382.50)	(517.50)	Common stockholders' equity		
Net plant and equipment	$1,287.00	$1,327.50	Common stock–par value	45.00	45.00
Total assets	$1,764.00	$1,971.00	Paid in capital	324.00	324.00
			Retained earnings	382.50	542.25
			Total common stockholders' equity	$ 751.50	$ 911.25
			Total liabilities and stockholders' equity	$1,764.00	$1,971.00

Legend:

Assets: The Left-Hand Side of the Balance Sheet

Current Assets. Assets that the firm expects to convert into cash in 12 months or less. Examples include cash, accounts receivable, inventories, and other current assets.

- **Cash.** Every firm must have some cash on hand at all times because cash expenditures can sometimes exceed cash receipts.
- **Accounts receivable.** The amounts owed to the firm by its customers who purchased on credit.
- **Inventory.** Raw materials that the firm utilizes to build its products, partially completed items or work in process, and finished goods held by the firm for eventual sale.
- **Other current assets.** All current assets that do not fall into one of the named categories (cash, accounts receivable, and so forth). Prepaid expenses (prepayments for insurance premiums, for example) are a common example of an asset in this catch-all category.

Gross Plant and Equipment. The sum of the original acquisition prices of plant and equipment still owned by the firm.

Accumulated Depreciation. The sum of all the depreciation expenses charged against the prior year's revenues for fixed assets that the firm still owns.

Net Plant and Equipment. The undepreciated value of the firm's plant and equipment.

Liabilities and Stockholders' Equity: The Right-Hand Side of the Balance Sheet

Current Liabilities. Liabilities that are due and payable within a period of 12 months or less. Examples include the firm's accounts payable, accrued expenses, and short-term notes.

- **Accounts payable.** The credit suppliers extended to the firm when it purchased items for its inventories.
- **Accrued expenses.** Liabilities that were incurred in the firm's operations but not yet paid. For example, the company's employees might have done work for which they will not be paid until the following week or month. The wages owed by the firm to its employees are recorded as accrued wages.
- **Short-term notes.** Debts created by borrowing from a bank or other lending source that must be repaid in 12 months or less.

Long-term Debt. All firm debts that are due and payable more than 12 months in the future. A 25-year mortgage loan used to purchase land or buildings is an example of long-term liability. If the firm has issued bonds, the portion of those bonds that is not due and payable in the coming 12 months is also included in long-term debt.

Common stockholders' equity. Common stockholders are the residual owners of a business. They receive whatever income is left over after the firm has paid all of its expenses. In the event the firm is liquidated, the common stockholders receive only what is left over—but never lose more than they invested—after the firm's other financial obligations have been paid.

Current Assets

Current assets consist of the firm's cash plus other assets the firm expects to convert to cash within 12 months or less. Boswell had current assets of $643.5 million at the end of 2010, comprised principally of its **inventories** of $378 million (including raw materials used to make the firm's products, goods in process, and finished goods that are ready for sale), and its accounts receivable of $162 million, which reflects the value of prior credit sales that have not been collected.

Fixed Assets

Fixed assets are assets that the firm does not expect to sell within one year. These include plant and equipment, land, and other investments that are expected to be held for an extended period of time and frequently cannot be easily converted to cash. Boswell has **gross plant and equipment** totaling $1,845 million at the end of 2010. This total represents the combined historical dollar amounts the firm has paid to acquire fixed assets. Net plant and equipment is equal to gross plant and equipment less **accumulated depreciation** expense. The latter is the sum of all depreciation expenses deducted in the firm's income statement in previous periods for the plant and equipment.

Gross plant and equipment changes over time as new assets are acquired and others are sold. When a firm purchases a new computer system, for example, it does not immediately report the cost as an expense in its income statement for the period. Instead, the computer system is considered to be an asset and is included on the balance sheet. Then the cost of the computer system is depreciated over time. Some assets, such as land, are not expected to depreciate; these assets are carried on the firm's balance sheet at their original cost until they are sold for a profit or a loss.

H. J. Boswell's gross fixed assets for 2009 and 2010 are shown in Table 3.2. In 2009, the firm had $1,669.50 million in gross plant and equipment. By the end of 2010, this amount had grown to $1,845 million. In other words, Boswell acquired an additional $175.5 million in fixed assets during the year (i.e., $1,845 million − $1,669.5 million = $175.5 million). In addition, during 2010, the firm's accumulated depreciation expense rose from $382.5 million to $517.5 million. This increase in accumulated depreciation is equal to the amount of depreciation expense for the year (or the $135 million reported in the firm's income statement found in Table 3.1). Thus, Boswell's net fixed assets rose by $40.5 million (the difference in the company's new fixed assets of $175.5 million and the depreciation expense recorded for 2010 of $135 million).

Liabilities and Stockholders' Equity: The Right-Hand Side of the Balance Sheet

We now turn to the right-hand side of the balance sheet in Table 3.2 labeled "Liabilities and Owner's Equity." This side of the balance sheet indicates how the firm finances its assets. H. J. Boswell Inc. has borrowed a total of $1,059.75 million and raised $911.25 million in equity to finance its total investment in firm assets. Boswell's **current liabilities** represent the amount that the firm owes to creditors that must be repaid within a period of 12 months or less. Typically a firm's current liabilities will include **accounts payable**, which is what the firm owes its suppliers for items purchased for its inventories, and **notes payable**, which are short-term loans from banks and other creditors. Current liabilities totaled $288 million at the end of 2010. The firm also owed $771.75 million in **long-term debt** such as loans from banks and other lenders that have maturities longer than one year. This also includes bonds sold by the firm in the public markets.

To understand the stockholders' equity account we need to know how accountants construct this account. Specifically, it is broken down into the following components:

1) *The amount the company received from selling stock to investors*. This amount may simply be shown as common stock in the balance sheet or it may be divided into two components: par value and additional paid in capital above par.[5] **Par value** is the stated or face value a firm puts on each share of stock prior to it being offered for sale. The par value has

[5]We assume that the firm has not issued any preferred stock.

no relationship to the market value of the shares. For example, Boswell's par value per share is $1.00 and the firm has 45 million shares outstanding such that the par value of the firm's common equity is $45 million. The **paid in capital above par,** or simply **paid in capital**, for short, is the additional amount of capital the firm raised when buyers purchased Boswell's stock for more than its par value.[6] This amounts to $324 million for Boswell.

2) *The amount of the firm's retained earnings.* **Retained earnings** are the portion of net income that has been retained (i.e., not paid in dividends) from prior years' operations. Boswell has retained a total of $542.25 million over the course of its existence.

In effect, **stockholders' equity** is equal to the sum of the par value of common stock plus paid in capital plus retained earnings.

$$\begin{matrix}\text{Stockholders'}\\ \text{Equity}\end{matrix} = \begin{matrix}\text{Par Value of}\\ \text{Common Stock}\end{matrix} + \begin{matrix}\text{Paid in}\\ \text{Capital}\end{matrix} + \begin{matrix}\text{Retained}\\ \text{Earnings}\end{matrix} \quad \textbf{(3–3)}$$

Alternatively, shareholders' equity can be thought of as the difference between total assets and total liabilities. For example, if some of your company's assets included stocks or bonds that had declined in value over time, then the value of the company's assets would decline accordingly. Thus, in order for the balance sheet to balance, stockholders' equity must decline, and that is done through a reduction in common equity. In effect,

$$\left(\begin{matrix}\text{Stockholders'}\\ \text{Equity}\end{matrix}\right) = \left(\begin{matrix}\text{Total}\\ \text{Assets}\end{matrix}\right) - \left(\begin{matrix}\text{Total}\\ \text{Liabilities}\end{matrix}\right) \quad \textbf{(3–4)}$$

Firm Liquidity and Net Working Capital

The **liquidity** of an asset refers to the speed with which the asset can be converted into cash without loss of value. Obviously, the firm's bank account is perfectly liquid since it consists of cash that can be readily spent. However, other types of assets are less liquid because they are more difficult to sell and convert into cash.

We can also think in terms of the liquidity of the firm as a whole, the firm's ability to regularly convert its current assets (principally accounts receivable and inventories) into cash so that it can pay its bills on time. This is a function of both the liquidity of the firm's current assets and the size of the bills the firm must pay. A common way to assess a firm's overall liquidity therefore involves comparing its current assets to its current liabilities. This simple measure of the firm's liquidity is its **net working capital**, the difference between the firm's current assets and current liabilities.

$$\begin{matrix}\text{Net Working}\\ \text{Capital}\end{matrix} = \left(\begin{matrix}\text{Current}\\ \text{Assets}\end{matrix}\right) - \left(\begin{matrix}\text{Current}\\ \text{Liabilities}\end{matrix}\right) \quad \textbf{(3–5)}$$

Graphically, this is presented in Figure 3.1. Recall that current assets are those assets that the firm expects to be able to convert to cash within a period of one year or less, and current liabilities are those debts the firm owes that must be paid within one year. Consequently, a firm whose current assets are much larger than its current liabilities is in a good position to repay its debts on time and is consequently very liquid. Lenders frequently focus on the amount of net working capital as an important indicator of a firm's ability to repay its loans.

For H. J. Boswell, Inc., net working capital for year-end 2010 is computed as follows using information from Table 3.2:

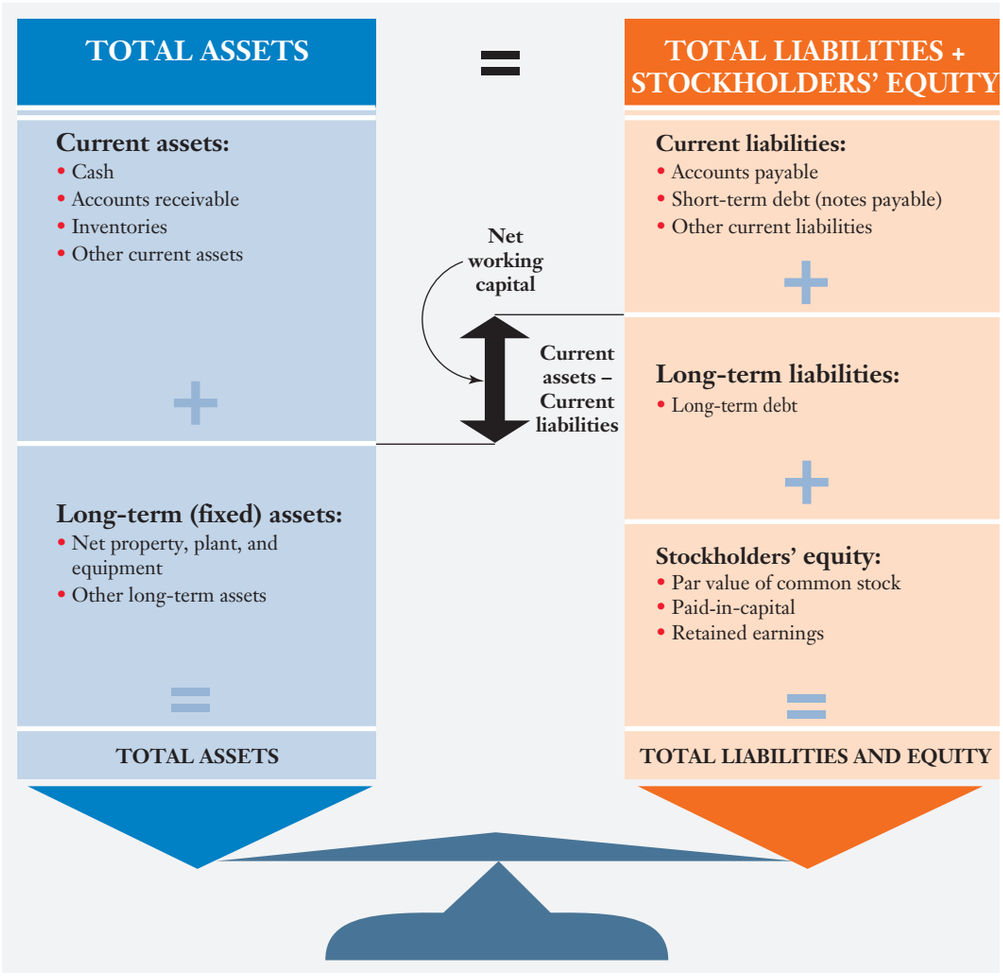
Current Assets	$643,500,000
Less: Current liabilities	288,000,000
Equals: Net working capital	$355,500,000

[6]The amount of common stock issued will be offset by any stock that has been repurchased by the company. The amount of the repurchases is listed as **treasury stock.**

Figure 3.1

The Balance Sheet

The balance sheet represents a snapshot of the firm. Specifically, it lists the assets the firm has acquired, classified as current and long-term (or fixed) assets, as well as the sources of financing the firm has used to finance the acquisition of its assets. Net working capital is an important measure of a firm's ability to pay its bills on time and is equal to the difference in the dollar amount of current assets (assets the firm expects to convert to cash within the year) and current liabilities (debts the firm must repay within the year). Stockholders' equity is the total investment of the firm's owners in the firm and is equal to the difference in total assets and total liabilities.



>> END FIGURE 3.1

Debt and Equity Financing

The right-hand side of the firm's balance sheet reveals the sources of the money used to finance the purchase of the firm's assets listed on the left-hand side of the balance sheet. It shows how much was borrowed (debt financing) and how much was provided by the firm's owners (equity financing), either through the sale of equity to investors or through the retention of prior years' earnings.

Debt and equity, as you will recall from Chapter 2, differ with regard to how the holders of these types of securities get paid and the priority of their respective claims in the event the firm were to become bankrupt, because debt security holders or lenders get paid first. They typically receive periodic interest payments up until the maturity of the debt, at which time the

Checkpoint 3.2

Constructing a Balance Sheet

Construct a balance sheet for Gap, Inc. (GPS) using the following list of jumbled accounts for January 31, 2009. Identify the firm's total assets and net working capital:

Net property, plant, and equipment	$ 2,933,000,000	Accounts receivable	$ 0
Cash	1,756,000,000	Long-term liabilities	1,019,000,000
Current liabilities	2,158,000,000	Common equity	4,387,000,000
Other current assets	743,000,000	Inventories	1,506,000,000
Other long-term assets	626,000,000	Accounts payable	2,067,000,000

STEP 1: Picture the problem

The firm's balance sheet can be visualized as a mathematical equation using Equation (3–2) as follows:

Total Shareholders' Equity + Total Liabilities = Total Assets (3–2)

Just as with the income statement equation, this equation belies the level of detail normally included in the firm's balance sheet. The template below shows how to construct the balance sheet:

Current assets
- Cash
- Accounts receivable
- Inventories
- Other current assets

Total current assets

Long-term (fixed) assets
- Gross property, plant and equipment
- Less: Accumulated depreciation
- Net property, plant and equipment
- Other long-term assets

Total long-term assets

Total assets

Current liabilities
- Accounts payable
- Short-term debt (notes payable)
- Other current liabilities

Total current liabilities

Long-term liabilities
Long-term debt

Owners' equity
- Par value of common stock
- Paid in capital
- Retained earnings

Total equity

Total liabilities and owners' equity

STEP 2: Decide on a solution strategy

Given the account balances provided, constructing the balance sheet simply entails substituting the appropriate balances into the template found above.

STEP 3:. Solve

Current assets	$4,005,000,000	Current Liabilities	$2,158,000,000
Long-term assets	$3,559,000,000	Long-term Liabilities	1,019,000,000
Total assets	$7,564,000,000	Common Equity	4,387,000,000
		Total Liabilities and Equity	$7,564,000,000

Total assets = Current assets + Long-term assets = $4,005,000,000 + 3,559,000,000 = $7,564,000,000
Net working capital = Current assets − Current liabilities = $4,005,000,000 − $2,158,000,000 = $1,847,000,000

STEP 4: Analyze

There are some important observations we can make about Gap's balance sheet. First, the firm has invested a total of $7.564 billion in assets that have been financed using current liabilities of $2.158 billion, $1.019 billion in long-term liabilities, and $4.387 billion in owner-supplied funds. Second, the firm has $4.005 billion tied up in current assets and $2.158 billion in current liabilities, leaving the firm with a net working capital position of $4.005 billion − 2.158 billion = $1.847 billion. The latter suggests that the value of the firm's current assets could shrink by as much as $1.847 billion and the firm could still pay its current liabilities.

STEP 5: Check yourself

Reconstruct Gap's balance sheet to reflect the repayment of $1 billion in short-term debt using a like amount of the firm's cash. What is the balance for total assets and current liabilities?

ANSWER: $6.564 billion and $1.847 billion, respectively.

Your Turn: For more practice, do related **Study Problems** 3–11 and 3–12 at the end of this chapter. **>> END Checkpoint 3.2**

principal must be repaid. Equity securities, on the other hand, do not mature and, although equity security holders may receive dividends, there is no contractual or pre-determined dividend payment (for example, as late as 2010, Apple had not paid a dividend since 1995). Another key difference between debt and equity is the fact that debt holders are paid before equity holders in the event of bankruptcy.

It is often said that equity holders have the residual claim on income. This simply means that they have a claim on any income that is *left over* after paying the firm's obligations. This income is either paid to them in the form of dividends, used to buy back outstanding stock, or added to their investment in the firm when the firm reinvests the retained earnings.

Book Values, Historical Costs, and Market Values

The different objectives of the accountants who prepare financial statements and the financial managers who interpret those statements is perhaps nowhere more apparent than in the comparison of book values based on historical costs and market values. Moreover, the difference between an asset's book value and its current market value can be very significant. For example, the book values of current assets are generally very close to their market values. By contrast, the book and market values of fixed assets can differ substantially. For example, in January 2009 Home Depot (HD) had total assets (book value) of $44.2 billion; however the market value of its liabilities plus equity totaled more than $65 billion. There are two reasons for book and market values to be different. First, over time, inflation greatly affects the cost of fixed assets. For example, when Boswell purchased land for one of its plant sites in 1998, the price of the parcel of land was $3.2 million. By 2009 the value of the land had risen to over $8 million; however, on Boswell's balance sheet the land continues to be valued at its historical cost.

The second reason for a difference in book and market values is that the firm adjusts the book value of its fixed assets (other than land) downward each year as it depreciates them. This depreciation expense represents the firm's acknowledgement of the fact that fixed assets wear out and the cost of the wear must be accounted for in determining the profits the firm earns. For example, if Boswell were to pay $25,000 for a new forklift truck in 2009 that it expected to depreciate over five years toward a zero salvage value, the truck would have a book value in 2009 equal to its cost, but this book value would decline by $5,000 every year until the end of 2014 when it would drop to zero (i.e., the truck would then be fully depreciated). However, the depreciation expense the firm uses reflects accounting and tax rules rather than actual changes in market values. As a consequence, the adjusted book values can sometimes bear little resemblance to market values.

The Business of Life

Your Personal Balance Sheet and Income Statement

We can apply the concepts of financial statements to prepare a personal balance sheet and income statement. A personal balance sheet is a snapshot of your financial status at a particular point in time. It lists the assets you own and the debts, or liabilities, you owe. Your personal net worth is equal to the difference between your assets and your liabilities. A sample balance sheet worksheet is provided below in Figure 3.2. As you can see, it looks a lot like H. J. Boswell's corporate balance sheet.

Once you've prepared your personal balance sheet and identified your net worth, the next step is to trace where your money comes from and how it is spent. To do this, we put together a personal income statement that looks at both the money you take in and the money you spend. What's left over (if anything) is, like a firm's profit, the amount you have available for savings or investment. If you're spending too much, your income statement will show you exactly where your money is going so that you can spot these problem areas quickly. With a good income statement, you'll never end another month wondering where your money went. A sample income statement is provided in Figure 3.3.

The income statement and balance sheet should be used together. The balance sheet lets you assess your financial standing by showing your net worth. The income statement tells you exactly how your spending and saving habits are affecting your net worth. If your balance sheet shows you that you're not building your net worth as quickly as you'd like, or if you're overspending and actually decreasing your net worth, your income statement can help you identify where your money is going.

In the Business of Life box in the next chapter we will look at putting the income statement and balance sheet into action through the use of a personal budget.

Figure 3.2

Your Personal Balance Sheet

Assets (What You Own)		
A. Monetary Assets (bank account, etc.)		_____
B. Investments	+	_____
C. Retirement Plan Investments	+	_____
D. Housing (market value)	+	_____
E. Automobiles	+	_____
F. Personal Property	+	_____
G. Other Assets	+	_____
H. Your Total Assets (add lines A–G)	=	_____
Liabilities or Debt (What You Owe)		
Current Debt		
I. Current Bills		_____
J. Credit Card Debt	+	_____
Long-Term Debt		
K. Housing		_____
L. Automobile Loans	+	_____
M. Other Debt	+	_____
N. Your Total Debt (add lines I–M)	=	_____
Your Net Worth		
H. Total Assets	+	_____
N. Less: Total Debt	–	_____
O. Equals: Your Net Worth	=	_____

>> END FIGURE 3.2

Figure 3.3

Your Personal Income Statement

Your Take-Home Pay		
A. Total Income		_____
B. Total Income Taxes		– _____
C. After-Tax Income Available for Living Expenditures or Take-Home Pay (line A minus line B)		= _____
Your Living Expenses		
D. Total Housing Expenditures	_____	
E. Total Food Expenditures	+ _____	
F. Total Clothing and Personal Care Expenditures	+ _____	
G. Total Transportation Expenditures	+ _____	
H. Total Recreation Expenditures	+ _____	
I. Total Medical Expenditures	+ _____	
J. Total Insurance Expenditures	+ _____	
K. Total Other Expenditures	+ _____	
L. Total Living Expenditures (add lines D–K)		= _____
Total Available for Savings and Investments		
C. After-Tax Income Available for Living Expenditures or Take-Home Pay		_____
L. Total Living Expenditures		– _____
M. Income Available for Savings and Investment (line C minus line L)		= _____

>> END FIGURE 3.3

Your Turn: See Study Question 3–9.

Before you move on to 3.5

Concept Check | 3.4

1. Describe the basic categories of assets and liabilities reported in a firm's balance sheet.
2. What does the term *net working capital* mean and how is it computed?

3.5 The Cash Flow Statement

We now move on to the third financial statement we want to review. The **cash flow statement** is a report, like the income statement and balance sheet, that firms use to explain changes in their cash balances over a period of time by identifying all of the sources and uses of cash for the period spanned by the statement. The focus of the cash flow statement is the change in the firm's cash balance for the period of time covered by the statement (i.e., one year or one quarter):

$$\text{Change in Cash Balance} = \text{Ending Cash Balance} - \text{Beginning Cash Balance} \quad \textbf{(3–6)}$$

Since the beginning cash balance for 2010 is the ending balance for 2009 we typically evaluate Equation (3–6) as follows:

$$\text{Change in Cash Balance for 2010} = \text{Ending Cash Balance for 2010} - \text{Ending Cash Balance for 2009} \quad \textbf{(3–7)}$$

Still another way to look at the change in cash balance for the period is to compare the sources and uses of cash for the period.

We can find the information needed to prepare the cash flow statement in the income statement for the period and the beginning and ending balance sheets for the period. So before we dig into the specific format of the cash flow statement, let us first identify a firm's sources and uses of cash by looking at its balance sheet changes from the beginning to the end of the year. These changes will tell the story of where the firm obtained cash and how it was spent.

Sources and Uses of Cash

A **source of cash** is any activity that brings cash into the firm, such as when the firm sells goods and services or sells an old piece of equipment that it no longer needs. A **use of cash** is any activity that causes cash to leave the firm, such as the payment of taxes, the purchase of a new piece of equipment, and so forth.

We can identify both sources and uses of cash by looking at the changes in balance sheet entries from the beginning to the end of the period. For example, we can use the 2009 and 2010 balance sheets found in Table 3.3 to see how Boswell's balance sheet entries for assets changed from 2009 to 2010. First, note that the cash balance declined by $4.5 million. This change is the object of the analysis, so let us move on to accounts receivable, which increased from

Table 3.3 H. J. Boswell, Inc. Balance Sheets and Balance Sheet Changes

Balance Sheets for the Years Ending December 31, 2009 and 2010
($ millions)

	2009	2010	Change
Cash	$ 94.50	$ 90.00	(4.50)
Accounts receivable	139.50	162.00	22.50
Inventory	229.50	378.00	148.50
Other current assets	13.50	13.50	0.00
Total current assets	$ 477.00	$ 643.50	166.50
Gross plant and equipment	1,669.50	1,845.00	175.50
Less accumulated depreciation	(382.50)	(517.50)	(135.00)
Net plant and equipment	$1,287.00	$1,327.50	40.50
Total assets	$1,764.00	$1,971.00	207.00
	2009	**2010**	**Change**
Accounts payable	$184.50	$ 189.00	4.50
Accrued expenses	45.00	45.00	0.00
Short-term notes	63.00	54.00	(9.00)
Total current liabilities	$ 292.50	$ 288.00	(4.50)
Long-term debt	720.00	771.75	51.75
Total debt	$1,012.50	$1,059.75	47.25
Common stockholders' equity			
Common stock–par value	45.00	45.00	0.00
Paid in capital	324.00	324.00	0.00
Retained earnings	382.50	542.25	159.75
Total common stockholders' equity	$ 751.50	$ 911.25	159.75
Total liabilities and equity	$1,764.00	$1,971.00	207.00

$139.5 million to $162 million. Accounts receivable represents the sum total of all credit sales that have not been collected yet. Thus, the increase in receivables resulted because Boswell's sales are made on credit, and the firm's customers owed Boswell $22.5 million *more* at the end of 2010 than they did at the end of 2009. This means that Boswell *used* cash to invest in accounts receivable.[7] Similarly, inventories rose by $148.5 million indicating the *use* of cash to invest in a higher level of inventory, which represents the firm's stockpile of products that are either ready for sale (finished goods) or in process of being made ready for sale (work in progress inventory). *So, in general, we can think of increases in assets as an indication of the use of cash whereas a decrease in an asset account is a source of cash.*

What about changes in the firm's liability accounts? Note that accounts payable, which includes the credit extended to the firm to acquire inventory, increased by $4.5 million in 2010. This indicates that Boswell obtained an additional $4.5 million from accounts payable, *so an increase in a liability account indicates a source while a decrease in a liability is a use of cash*. For example, short-term notes decreased by $9 million which means that Boswell paid down its short-term notes owed to banks and other creditors by this amount, which is a use of cash.

Note that Boswell's retained earnings, which represent the sum of all its past earnings that have been reinvested in the firm, increased by $159.75 million for the period. This increase represents a source of cash to the firm from the firm's operations. The increase in retained earnings is calculated from the income statement (Table 3.1) as follows:

Net Income for 2010	$204.75 million
Less: Dividends paid in 2010	45.00 million
Equals: Change in Retained Earnings for 2010	$159.75 million

We can summarize all the sources and uses of cash for Boswell in 2010 using the following criteria for identifying sources and uses of cash:

Sources of Cash	Uses of Cash
Decrease in an asset account	Increase in an asset account
Increase in a liability account	Decrease in a liability account
Increase in an owners' equity account	Decrease in an owners' equity account

For Boswell, we summarize sources and uses of cash for 2010 as follows ($ millions):

Sources of cash:		
Increase in accounts payable	$ 4.50	
Increase in long-term debt	51.75	
Increase in retained earnings	159.75	
Total Sources of cash		$ 216.00
Uses of cash		
Increase in accounts receivable	$ 22.50	
Increase in inventory	148.50	
Increase in net plant and equipment	40.50	
Decrease in short-term notes	9.00	
Total uses of cash		$ 220.50
Change in cash balance = sources of cash − uses of cash = $216.00 − 220.50		$ (4.50)

So, here is what we have learned about H. J. Boswell's operations during 2010 from analyzing its sources and uses of cash:

- The firm used more cash than it generated, thus its cash balance declined by $4.5 million.
- Boswell's primary source of cash was from the retention of earnings from operations although it did increase long-term debt by $51.75 million.

[7]It is easier to see how changes in accounts receivable affect cash when the account balance falls. For example, if a firm's accounts receivable balance fell by $10,000 during the period, this means that the firm's customers have paid the firm cash. So, a decrease in accounts receivable is actually a source of cash!

- The largest single use of cash involved the addition of $148.5 million in inventories.
- The firm paid down $9 million of short-term debt but on balance increased its borrowing substantially due to the increase in long-term borrowing noted above.

By analyzing the firm's sources and uses of cash over the period we begin to paint an overall picture of the firm's financial activities. By looking at changes in the firm's balance sheet accounts, we learn what actions the management took over the year, not just the end results of those actions.

H. J. Boswell's Cash Flow Statement

The format of the cash flow statement is a bit different than the simple sources and uses of cash analysis we just completed. However it utilizes the same information. In the cash flow statement, we bring in information from the income statement directly and provide more details about the change in retained earnings. Moreover, sources and uses of cash are classified into one of three broad categories:

- **Operating activities** represent the company's core business including sales and expenses (basically any cash activity that affects net income for the period).
- **Investment activities** include the cash flows that arise out of the purchase and sale of long-term assets such as plant and equipment.
- **Financing activities** represent changes in the firm's use of debt and equity. The latter include the sale of new shares of stock, the repurchase of outstanding shares, and the payment of dividends.

The basic format of the statement is the following:

Beginning Cash Balance
  Plus: Cash Flow from Operating Activities
  Plus: Cash Flow from Investing Activities
  Plus: Cash Flow from Financing Activities
Equals: Ending Cash Balance

Finance in a **Flat World**

GAAP vs. IFRS

Financial reporting in the United States is governed by a collection of accounting principles referred to as Generally Accepted Accounting Principles or GAAP for short. However, the increasing globalization of financial markets has led to the growing acceptance of many accountants that the new standards for financial reporting within the United States will look a lot more like the International Financial Reporting Standards (IFRS) used by many foreign companies. Although the two systems are similar, the IFRS system is typically characterized as being simpler while offering more reporting flexibility than GAAP rules. The transition to the IFRS began in April 2007 when President Bush announced that IFRS will be recognized in the United States within two years as part of an agreement with the European Union.

Source: Sarah Johnson, Goodbye GAAP, *CFO* (April 2008), 49–54.

Your Turn: See Study Question 3–10.

Table 3.4 contains the 2010 cash flow statement for Boswell. Note that although the format of the statement differs from our earlier listing of sources and uses of cash, the content is basically the same. That is, the statement explains why the firm's cash balance declined by $4.5 million during 2010. This statement also ties in information from the income statement that details the firm's net income and cash dividends, which determines the change in retained earnings.

The key learning point is that the cash flow statement provides a detailed account of the major decisions that the firm's management made during the period that had an effect on the firm's sources and uses of cash. The statement can be used to answer a wide variety of important questions about the firm's actions over the period that had an impact on its financial well being. For example, we can look at the operating activities to see whether the firm's operations are generating cash; we can also review the firm's investing activities for clues as to whether the firm is still growing by increasing its expenditures for new capital equipment. Moreover, the analyst can use the financing activities section to analyze how the firm is financing its operations.

Table 3.4 H. J. Boswell, Inc.

Statement of Cash Flow for the Year Ending December 31, 2010
($ millions)

Ending cash balance for 2009 (beginning balance for 2010)			**$94.50**
Operating Activities			
Net income	$204.75		
Increase in accounts receivable	(22.50)		
Increase in inventories	(148.50)		
No change in other current assets	—		
Depreciation expense	135.00		
Increase in accounts payable	4.50		
No change in accrued expenses	—		
Cash flow from operating activities		***$ 173.25***	
Investing activities			
Purchases of plant and equipment	(175.50)		
Cash flow from investing activities		***(175.50)***	
Financing activities			
Increase in short-term notes	(9.00)		
Increase in long-term debt	51.75		
Cash dividends paid to shareholders	$(45.00)		
Cash flow from financing activities		***(2.25)***	
Increase (decrease) in cash during the year			***$ (4.50)***
Ending cash balance for 2010			**$90.00**

Checkpoint 3.3

Interpreting the Statement of Cash Flow

You are in your second rotation in the management training program at a regional brokerage firm and your supervisor calls you into her office on Monday morning to discuss your next training rotation. When you enter her office you are surprised to learn that you will be responsible for compiling a financial analysis of Chesapeake Energy Inc. (CHK). Chesapeake is the largest producer of natural gas in the United States and is headquartered in Oklahoma City. Your boss suggests that you begin your analysis by reviewing the firm's cash flow statements for 2004 through 2007 (found below):

	12 Months Ending December 31			
In Millions of U. S. Dollars	**2007**	**2006**	**2005**	**2004**
Net income	1,451.00	2,003.32	948.30	515.15
Depreciation/depletion	1,971.00	1,449.44	935.97	605.59
Deferred taxes	835.00	1,251.74	544.89	289.53
Non-cash items	350.00	(659.40)	(3.43)	(7.76)
Changes in working capital	325.00	798.37	(18.84)	29.75
Cash from operating activities	**4,932.00**	**4,843.47**	**2,406.89**	**1,432.27**
Capital expenditures	(6,744.00)	(4,765.61)	(2,856.08)	(1,426.14)
Other investing cash flow items, total	(1,178.00)	(4,176.89)	(4,065.30)	(1,955.06)
Cash from investing activities	**(7,922.00)**	**(8,942.50)**	**(6,921.38)**	**(3,381.20)**
Financing cash flow items	(196.00)	52.51	39.05	77.40
Total cash dividends paid	(210.00)	(175.43)	(92.01)	(79.81)
Issuance (retirement) of stock, net	15.00	2,303.59	2,344.92	941.11
Issuance (retirement) of debt, net	3,379.00	1,860.85	2,275.65	976.54
Cash from financing activities	**2,988.00**	**4,041.52**	**4,567.62**	**1,915.24**
Net change in cash	**(2.00)**	**(57.51)**	**53.13**	**(33.69)**

She asked that you write out a narrative describing Chesapeake's operations over the last four years just using the cash flows of the firm. In the narrative you should address some very basic questions including the following: (i) how much cash has the firm generated from its operations? (ii) how much cash has the firm been investing? and (iii) how has the firm financed its needs for cash?

STEP 1: Picture the problem

The cash flow statement uses information from the firm's balance sheet and income statement to identify the net sources and uses of cash for a specific period of time. Moreover, the sources and uses are organized into cash from operating activities, from investing activities, and from financing activities:

Beginning Cash Balance

Plus: Cash flow from operating activities

Plus: Cash flow from investing activities

Plus: Cash flow from financing activities

Equals: Ending Cash Balance

We can write down an equation to represent the cash flow statement as follows:

$$\begin{matrix}\text{Beginning}\\\text{Cash Balance}\end{matrix} + \begin{matrix}\text{Cash Flow From}\\\text{Operating Activities}\end{matrix} + \begin{matrix}\text{Cash Flow From}\\\text{Investing Activities}\end{matrix} + \begin{matrix}\text{Cash Flow From}\\\text{Financing Activities}\end{matrix} = \begin{matrix}\text{Ending}\\\text{Cash Balance}\end{matrix}$$

The cash flow statements for Chesapeake focus on the change in cash for the period or the difference between the beginning and ending balances. This can be expressed as an equation as follows:

$$\begin{matrix}\text{Net Change}\\\text{In Cash}\end{matrix} = \left(\begin{matrix}\text{Ending}\\\text{Cash Balance}\end{matrix} - \begin{matrix}\text{Beginning}\\\text{Cash Balance}\end{matrix}\right) = \begin{matrix}\text{Cash Flow From}\\\text{Operating Activities}\end{matrix} + \begin{matrix}\text{Cash Flow From}\\\text{Investing Activities}\end{matrix} + \begin{matrix}\text{Cash Flow From}\\\text{Financing Activities}\end{matrix}$$

STEP 2: Decide on a solution strategy

The basic format of the cash flow statements provides a useful guide to the analysis of a firm's cash flows for the period. For example, the cash flow from operating activities section describes how much cash the firm generated from operations, the investing cash flow section summarizes how much money the firm invested in new fixed assets, and the financing section summarizes the net results of the firm's financing decisions for the period. To analyze what the firm has done that affects its cash balance we need only review the balances under each of the above sections of the cash flow statement.

STEP 3: Solve

Cash flow from operating activities:

- Chesapeake has had positive and growing cash flows from operations every year during the entire period.
- The primary contributors to the operating cash flows were the firm's net income plus depreciation/depletion expense.[8]
- Working capital is a source of cash in three of the four years, indicating the net reduction in the firm's investment in working capital.

Cash flow from investing activities:

- Chesapeake has been a very aggressive investor in new fixed assets and acquisitions of new oil and gas properties.
- Total investments have been roughly two times the firm's operating cash flows, which meant that the firm had to raise a substantial amount of outside financing in the financial markets.

Cash flow from financing activities:

- Chesapeake has been a regular issuer of both equity and debt throughout the period.
- The firm's peak year for raising external financing was 2005 when it raised over $4.5 billion.
- The firm issued a total of $5.6 billion in equity and $8.5 billion in debt over the four-year period.
- The firm has paid a total of $557.25 million in dividends to its stockholders over the period.

Summary Comments:

Chesapeake has made a lot of money over this four-year period. However, the firm has been investing in new properties at a much higher pace (they invested a total of $27.2 billion over the last four years) such that the firm has had to go to the financial market every year to raise the additional capital it required to finance its investments. The net result is that the cumulative change in cash over the four-year period is a negative $40.07 million.

STEP 4: Analyze

The cash flow statements portray a very profitable firm that has been investing at a pace that is roughly double the firm's operating cash flows. The net result was the ability to raise over $13.5 billion in new financing from the financial markets. Moreover, the firm has made relatively modest cash distributions to its shareholders and has, instead, reinvested the firm's substantial earnings back into the firm.

STEP 5: Check yourself

Go to http://finance.google.com/finance and get the cash flow statements for the most recent four-year period for Exco Resources (XCO). How does their cash from investing activities compare to their cash flow from operating activities in 2009?

ANSWER: Cash flow from operating activities = $577.83 million and cash flow from investing activities = ($2,396) million.

Your Turn: For more practice, do related **Study Problem** 3–14 at the end of this chapter. **>> END Checkpoint 3.3**

Before you begin end of chapter material

Concept Check | 3.5

1. Describe the content and purpose of the cash flow statement.
2. Is an increase in accounts receivable a source of cash or a use of cash? Explain.
3. Is a decrease in accounts payable a source of cash or use of cash? Explain.
4. When an asset balance increases this indicates that the firm has more of that asset, so why is this a use of cash?

[8]Depletion expense represents the expensing of the cost of oil and gas properties as they are produced. It is similar in concept to depreciation except the cost being expensed is the cost of acquiring and developing oil and gas properties.

Applying the Principles of Finance to Chapter 3

P Principle 1: **Money Has a Time Value** A firm's financial statements typically do not incorporate consideration for the time value of money. This fact is an important distinction between how the financial manager and the accountant view a firm's financial statements.

P Principle 3: **Cash Flows Are the Source of Value** Accounting statements contain important information that can be used to calculate current cash flows as well as to evaluate the potential of the firm to generate future cash flows.

P Principle 4: **Market Prices Reflect Information** Investors respond to new information by buying and selling their investments. The speed with which investors act and the way that prices respond to the information determine the efficiency of the market.

Chapter Summary

Concept Check | 3.1

1. Name the four basic financial statements that make up the published financial reports of a firm and describe the basic function of each.
2. What are the three uses of a firm's financial statements for the firm's management?
3. Describe the revenue recognition, matching, and historical cost principles as they are applied in the construction of a firm's financial statements.

3.1 Describe the content of the four basic financial statements and discuss the importance of financial statement analysis to the financial manager.

(pgs. 38-40)

SUMMARY: The accounting and financial regulatory authorities have mandated that firms should report four different financial statements with each having its own perspective and objective:

1. **Income statement—**includes the revenue the firm has earned over a specific period of time, usually a quarter of a year or a full year; the expenses it has incurred during the period to earn its revenues; and the profit the firm has earned during that period.
2. **Balance sheet—**contains information about the firm's assets (everything of value the company owns); liabilities (the firm's debts); and shareholders' equity (the money invested by the company owners).
3. **Cash flow statement—**reports cash received and cash spent by the firm over a period of time, usually one quarter of a year or a full year.
4. **Statement of shareholders' equity—**provides a detailed account of the firm's activities in the common and preferred stock accounts, the retained earnings account, and changes to owners' equity that do not appear in the income statement.

First, financial managers use the firm's financial statements to assess the firm's financial condition. Second, financial statements provide a tool for controlling the firm's operations. Finally, financial statements provide the model that managers use to develop forecasts and plans.

KEY TERMS

Accounts receivable, page 39 Credit sales that have not yet been collected.

Revenues, page 39 Sales recognized for the period and recorded in the firm's income statement.

3.2 Evaluate firm profitability using the income statement. (pgs. 40–45)

SUMMARY: A firm's income statement reflects its sales (also called revenues) earned during a specific period of time (for example, for one year or one quarter) less the expenses the firm incurred in producing those revenues. The firm's income statement is typically analyzed by calculating profit margins based on gross profits (revenues less cost of goods sold), operating income (gross profits less operating expenses), and net income (operating profits less interest expenses and the firm's tax liability for the period.)

KEY TERMS

Cost of goods sold, page 41 The cost of producing or acquiring the products or services that the firm sold during the period covered by an income statement.

Depreciation expenses, page 41 The allocation of the cost of the firm's long-lived assets (like its plant and equipment) in the income statement over the useful lives of the assets.

Dividends per share, page 42 The per share cash distribution a firm pays for each share of stock.

Earnings before interest and taxes (EBIT), page 41 Revenues from sales minus the cost of goods sold and less operating expenses. Also referred to as net operating income.

Earnings per share, page 42 Net income divided by the number of common shares outstanding.

Gross profit margin, page 42 The ratio of gross profit (sales less cost of goods sold) divided by sales.

Income statement, page 40 The financial statement that includes the revenue the firm has

earned *over a specific period of time*, usually a quarter of a year or a full year; the expenses it has incurred during the year to earn its revenues; and the profit the firm has earned.

Net income, page 42 The income that a firm has after subtracting costs and expenses from total revenue.

Net operating income, page 41 The firm's profits from its ongoing operations—before it makes interest payments and pays its taxes. Also referred to as earnings before interest and taxes (EBIT).

Net profit margin, page 43 Net income divided by sales.

Operating profit margin, page 42 The ratio of net operating income to sales.

Profits, page 40 Another term for income.

KEY EQUATIONS

$$\text{Revenues (or Sales)} - \text{Expenses} = \text{Profits} \qquad (3\text{–}1)$$

Concept Check | 3.2

1. What information can we derive from a firm's income statement?
2. List the entries in the income statement.
3. What does the acronym GAAP stand for?

3.3 Estimate a firm's tax liability using the corporate tax schedule and distinguish between the average and marginal tax rate. (pgs. 45–47)

SUMMARY: For the most part, taxable income for the corporation is equal to the firm's operating income less any interest expense. Rather than a single tax rate, the corporate tax is calculated using a schedule of rates that are applicable to various income brackets where the maximum tax rate of 35% in 2010 applies to all taxable income in excess of $18,333,333. If a firm pays $10,000 in taxes on $40,000 in taxable income then its average tax rate is 25%. However, with a progressive tax rate the last dollar of income will be taxed at a higher rate than the first dollar of income. The tax rate applicable to the last dollar of taxable income is the marginal tax rate. Moreover, the marginal tax rate is the rate that impacts any new earnings and consequently is the appropriate rate for use when making financial decisions.

KEY TERMS

Average tax rate, page 46 The ratio of the tax liability divided by taxable income.

Marginal tax rate, page 46 The tax rate that the company will pay on its next dollar of taxable income.

Taxable income, page 45 Firm revenues for the period less all tax-deductible expenses (such as cost of goods sold, operating expenses, and interest expense for the period).

Concept Check | 3.3

1. What is the difference between average and marginal tax rates?
2. What is the marginal tax rate for a firm that currently earns $75,000 in earnings before taxes and expects to earn $80,000 next year?
3. How are dividends received by corporations taxed?

3.4 Use the balance sheet to describe a firm's investments in assets and the way it has financed them. (pgs. 47–55)

SUMMARY: The balance sheet presents a snapshot of the company's assets, liabilities, and equity on a specific date. The firm's total assets represent the historical cost of all the investments that have been made in the business. Total assets must equal the firm's total debt and equity because every dollar of investment made in assets has been financed by the firm's creditors and owners. Assets are categorized into one of two groupings: current assets, which are assets expected to be converted to cash within a period of 12 months or less, or fixed assets, which are expected to remain on the firm's books for a period longer than one year. The firm's debts, or liabilities, include both its short-term debt (payable in 12 months or less) and its long-term debt (payable in more than 12 months). The balance sheet also includes the owners' equity, which includes (1) common stock, which can be shown as par value plus additional paid in capital (the additional amount of capital the firm raised when investors purchased its stock for more than its par value); and (2) the firm's retained earnings (the earnings that have been retained and reinvested in the business rather than being distributed to the company's shareholders).

KEY TERMS

Accounts payable, page 49 The credit suppliers extend to the firm when it purchases items for its inventories.

Accumulated depreciation, page 49 The sum of all depreciation expenses that have been deducted from the firm's income statement in previous periods for the plant and equipment the firm currently has on its balance sheet.

Balance sheet, page 47 A financial statement that contains a summary of the firm's assets (everything of value the company owns); liabilities (the firm's debts); and shareholders' equity (the money invested by the company owners).

Current assets, page 49 Cash plus other assets that the firm expects to convert into cash within 12 months or less.

Current liabilities, page 49 The debts of the firm that must be repaid within a period of 12 months or less.

Fixed assets, page 49 Those assets that the firm does not expect to sell or otherwise convert to cash within one year.

Gross plant and equipment, page 49 The sum of the historical cost of the plant and equipment owned by the firm.

Inventories, page 49 Raw materials used to make the firm's products, goods in process, and finished goods that are ready for sale.

Liquidity, page 50 The speed with which the asset can be converted into cash without loss of value.

Long-term debt, page 49 Loans from banks and other lenders that have maturities longer than one year as well as bonds sold by the firm in the public markets.

Market value, page 47 The price that an asset would trade for in a competitive market.

Net plant and equipment, page 47 The cumulative historical cost of plant and equipment owned by the firm (gross plant and equipment) less accumulated depreciation expense that has been charged against those assets over their useful life.

Net working capital, page 50 The difference between the firm's current assets and current liabilities.

Notes payable, page 49 A loan contract reflecting the fact that a firm has borrowed money which it promises to repay according to the terms of the agreement.

Paid in capital, page 50 The money contributed to a corporation by its stockholders in addition to the par value of the firm's stock. Sometimes called Paid in capital above par.

Par value, page 49 The stated value of a bond or share of stock at the time of issue.

Retained earnings, page 50 The accumulation of prior year net income that was retained and reinvested in the firm (i.e., not paid in dividends).

Stockholders' equity, page 50 The sum of the par value of common stock plus paid in capital plus retained earnings. This quantity is sometimes referred to as the book value of the firm's equity.

Total assets, page 47 The sum total of current and long-term assets recorded in the firm's balance sheet.

Total liabilities, page 47 The total amount of money the firm owes its creditors (including the firm's banks and other creditors).

Total shareholders' equity, page 47 Total assets less total liabilities.

Treasury stock, page 50 Stock which has been bought back by the issuing company.

KEY EQUATIONS

$$\text{Total Assets} = \text{Total Liabilities} + \text{Total Shareholders' Equity} \tag{3–2}$$

$$\text{Stockholders' Equity} = \text{Par Value of Common Stock} + \text{Paid in Capital} + \text{Retained Earnings} \tag{3–3}$$

$$\text{Stockholders' Equity} = \left(\text{Total Assets}\right) - \left(\text{Total Liabilities}\right) \tag{3–4}$$

$$\text{Net Working Capital} = \left(\text{Current Assets}\right) - \left(\text{Current Liabilities}\right) \tag{3–5}$$

Concept Check | 3.4

1. Describe the basic categories of assets and liabilities reported in a firm's balance sheet.
2. What does the term *net working capital* mean and how is it computed?

3.5 Identify the sources and uses of cash for a firm using the firm's cash flow statement. (pgs. 55–61)

SUMMARY: The cash flow statement explains the change in the firm's cash account, which equals the difference in the ending and beginning balance in the firm's cash account. The statement categorizes cash flows into one of three buckets: cash flow from operating activities, from investing activities, and from financing activities. This financial statement is widely used by financial analysts because it provides a very clear picture of what the firm did during the period to generate and spend cash.

Concept Check | 3.5

1. Describe the content and purpose of the cash flow statement.
2. Is an increase in accounts receivable a source of cash or a use of cash? Explain.
3. Is a decrease in accounts payable a source of cash or use of cash? Explain.
4. When an asset balance increases this indicates that the firm has more of that asset, so why is this a use of cash?

KEY TERMS

Cash flow statement, page 55 A financial statement that reports cash received and cash spent by the firm *over a period of time*, usually one quarter of a year or a full year.

Source of cash, page 56 Any activity that brings cash into the firm such as when the firm sells goods and services or sells an old piece of equipment that it no longer needs.

Use of cash, page 56 Any activity that causes cash to leave the firm such as the payment of taxes or payments made to stockholders, creditors, and suppliers.

KEY EQUATIONS

$$\text{Change in Cash Balance} = \text{Ending Cash Balance} - \text{Beginning Cash Balance} \quad (3\text{–}6)$$

$$\text{Change in Cash Balance for 2010} = \text{Ending Cash Balance for 2010} - \text{Ending Cash Balance for 2009} \quad (3\text{–}7)$$

Study Questions

3–1. Describe the content of the balance sheet and the income statement.

3–2. How do gross profits, operating income, and net income differ?

3–3. From the firm's perspective, how are dividends different from interest payments?

3–4. What is a firm's net working capital and what does it tell you about the liquidity of a firm?

3–5. When a firm's accounts receivable balance increases from one period to the next, the firm has experienced a use of cash. How is it that an increase in an asset such as accounts receivable represents a use of cash?

3–6. Appleby Southern Inc. had an accounts payable balance of $5 million at the end of 2009 and the balance rose to $7 million in 2010. What is the cash flow consequence of this change in accounts payable?

3–7. In 2010 RubKing Barbeque Sauce, Inc. purchased a new bottling machine at a cost of $1.5 million. The new machine is expected to last for 10 years and the firm plans to depreciate it using straight line depreciation of $150,000 per year. What is the cash flow consequence of the purchase for 2010?

3–8. The Cash Flow Statement is one of the four basic financial statements. Define the objective in preparing this statement and discuss some of the types of questions that can be addressed using its content.

3–9. **(Related to The Business of Life: Your Personal Balance Sheet and Income Statement on page 54)** In *The Business of Life: Your Personal Balance Sheet and Income Statement* box feature we learned that individuals have financial statements just like firms. Prepare your personal balance sheet using the following items: (i) you have a 2003 Corolla that you bought for $3,500 and still owe a note of $2000; (ii) your checking account has a balance of $453.28 and you have a savings account with a $2412.49 balance, (iii) you have an unpaid balance on your school loan of $12,591.22 to pay your tuition for last year. What is your current net worth?

3–10. **(Related to Finance in a Flat World: GAAP vs. IFRS on page 58)** In the *Finance in a Flat World: GAAP vs. IFRS* box feature we learned that GAAP, the financial reporting system used in the United States, is not the same as that used throughout the rest of the world. However, the U.S. system is converging with the international system. Do a web search and write up a brief statement summarizing the current status of the convergence of the U.S. and international accounting systems.

Self-Test Problems

Problem ST.1 (Understanding the Format and Content of Financial Statements)

This problem provides an opportunity to test your knowledge of the format of the balance sheet and income statement.

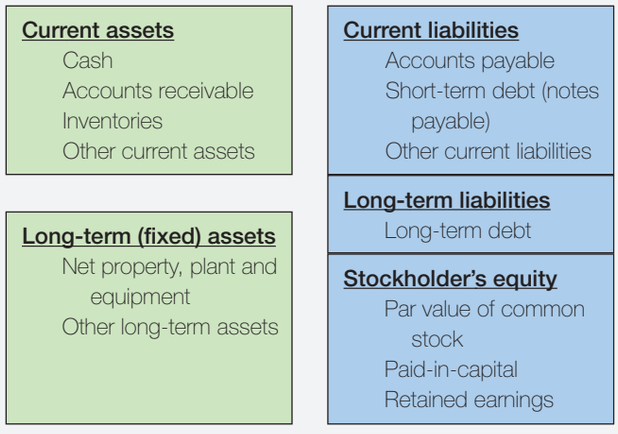
Accounts payable	$ 180,000
Accounts receivable	350,000
Accrued expenses	35,000
Accumulated depreciation	400,000
Cash	50,000
Common equity	480,000
Cost of goods sold	1,200,000
Current assets	625,000
Current liabilities	365,000
Earnings before taxes	480,000
Gross profit	800,000
Income taxes	120,000
Interest expense	70,000
Inventories	225,000
Long-term debt	580,000
Net income	360,000
Net operating income	550,000
Net plant and equipment	800,000
Operating expenses	250,000
Plant and equipment	1,200,000
Revenues	2,000,000
Short-term notes payable	150,000
Total assets	1,425,000
Total liabilities and owner's equity	1,425,000

a. Reconstruct the income statement and balance sheet of the Marion Corporation from the scrambled list of statement entries found above.
b. How profitable were Marion's operations during 2009?
c. How does Marion finance its assets?

Solution ST.1

STEP 1: Picture the problem

The balance sheet is comprised of two basic components: the firm's investments in assets (the left column) and the sources of financing for those assets (the right column):



Whereas the balance sheet represents a picture of the firm's assets and sources of financing at a specific point in time, the income statement in contrast measures the flow of revenues or sales into the firm and the flow of expenses incurred in generating those revenues out of the firm over a range of time. The standard form of the income statement can be envisioned as follows:

Revenues recognized as having been earned during the period

Less: Cost of the goods and services sold

Equals: Gross Profit

Less: Operating Expenses (including depreciation, sales and administrative expenses)

Equals: Net Operating Income (Profit)

Less: Interest Expense

Equals: Earnings before Taxes

Less: Income Taxes

Equals: Net Income

STEP 2: Decide on a solution strategy

The income statement is defined in Equation (3–1) as follows:

$$\text{Revenues} - \text{Expenses} = \text{Profits} \tag{3–1}$$

The balance sheet is defined in Equation (3–2) as follows:

$$\text{Total Shareholders' Equity} + \text{Total Liabilities} = \text{Total Assets} \tag{3–2}$$

By identifying the various entries that fall within each of these categories, we can construct the two statements.

STEP 3: Solve

a. The income statement and balance sheet are as follows:

Marion Corporation
Income Statement for the Year Ended 12/31/2009

Revenues	$2,000,000
Cost of goods sold	1,200,000
Gross profit	$ 800,000
Operating expenses	250,000
Net operating income (profit)	$ 550,000
Interest expense	70,000
Earnings before taxes	$ 480,000
Income taxes	120,000
Net income	$ 360,000

Marion Corporation
Balance Sheet for the Year Ended 12/31/2009

Cash	$ 50,000
Accounts receivable	350,000
Inventories	225,000
Current assets	$ 625,000
Plant and equipment	1,200,000
Accumulated depreciation	400,000
Net plant and equipment	$ 800,000
Total assets	$1,425,000
Accounts payable	$ 180,000
Accrued expenses	35,000
Short-term notes payable	150,000
Current liabilities	$ 365,000
Long-term debt	580,000
Common equity	480,000
Total liabilities and Stockholders' equity	$1,425,000

STEP 4: Analyze

a. Marion's profits can be measured in one of three ways: gross profit, net operating income and net income. The gross profit for Marion was $800,000 based on sales of $2,000,000, or 40%. This indicates that Marion is able to mark up the price of its goods and services by 67% over their cost (i.e., $800,000/$1,200,000). Marion's net operating income was $550,000 or 27.5% of firm sales. Finally, net income was $360,000, which is 18% of firm revenues. Clearly the firm is profitable.

b. Marion has $1.425 million in assets that it has financed using $480,000 in common equity, $580,000 in long-term debt, and the remainder using short-term or current liabilities.

>> END Solution ST.1

Problem ST.2 (Analyzing the Statement of Cash Flow)

Arapaho Inc. is an independent energy company that engages in the exploration, development, and production of crude oil, natural gas, and natural gas liquids in the United States and Canada. Arapaho's cash flow statement for 2010 (in millions of dollars) is found below:

Net income	$ 2,800
Depreciation expense	2,400
Changes in working capital	(600)
Cash from operating activities	**$ 4,600**
Capital expenditures	(5,000)
Cash from investing activities	**$(5,000)**
Total dividends paid	(200)
Issuance (retirement) of stock	50
Issuance (retirement) of debt	400
Cash from financing activities	**$ 250**
Net change in cash	**$ (150)**

a. How much cash did the firm generate from its operations over the year? Describe what happened to the firm's net working capital over the year.
b. How much cash did the firm invest in new capital expenditures and other investing activities in 2010?
c. What sources of financing did the company use to raise money during 2010?
d. How did the firm's cash balance change during 2010?

Solution ST.2

STEP 1: Picture the problem

The statement of cash flow combines information from the income statement and balance sheet to identify where the firm received cash from and how it was spent during the period. The sources and uses of cash are categorized into one of three categories: operating activities, investing activities, and financing activities. Adding sources and subtracting uses of cash from the beginning cash balance then allows us to explain the firm's ending cash balance as follows:

Beginning Cash Balance

Plus: Cash flow from operating activities

Plus: Cash flow from investing activities

Plus: Cash flow from financing activities

Equals: Ending Cash Balance

STEP 2: Select a solution strategy

The firm's cash flow statement provides a rich source of information that can be used to discover what the firm has done that required the expenditure of cash or gave rise to an inflow of cash. To analyze the firm's sources and uses of cash we can focus on each of the major segments of the statement: cash flows from operations, cash flows from investing activities, and cash flows from financing activities.

STEPS 3 AND 4: Solve and Analyze

a. The firm generated $4.6 billion from operations during 2009. It invested an additional $600 million in net working capital (i.e., the amount by which current assets exceeded current liabilities).

b. A total of $5 billion was invested in new capital investment projects that include the firm's expenditures for exploration and development.

c. Arapaho issued $50,000,000 in new common stock and borrowed an additional $400,000,000.

d. The firm's cash balance at the end of 2009 is $150,000,000 smaller than it was at year end 2008.

>> END Solution ST.2

Study Problems

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The Income Statement

3–1. **(Related to Checkpoint 3.1 on page 43)** **(Working with the income statement)** At the end of its third year of operations, the Sandifer Manufacturing Co. had $4,500,000 in revenues, $3,375,000 in cost of goods sold, $450,000 in operating expenses which included depreciation expense of $150,000, and had a tax liability equal to 35% of the firm's taxable income. What is the net income of the firm for the year?

3–2. **(Working with the income statement)** Sandifer Manufacturing Co. (from the previous problem) plans to reinvest $50,000 of its earnings back in the firm. What does this plan leave for the payment of a cash dividend to Sandifer's stockholders?

3–3. **(Working with the income statement)** If the Marifield Steel Fabrication Company earned $500,000 in net income and paid a cash dividend of $300,000 to its stockholders, what are the firm's earnings per share if the firm has 100,000 shares of stock outstanding?

Corporate Taxes

3–4. **(Corporate income tax)** Barrington Enterprises earned $4 million in taxable income (earnings before taxes) during its most recent year of operations. Use the corporate tax rates found in the chapter to calculate the firm's tax liability for the year. What are the firm's average and marginal tax rates?

3–5. **(Corporate income tax)** Last year Sanderson, Inc. had sales of $3 million. The firm's cost of its goods sold came to $2 million, and operating expenses excluding depreciation of $100,000 were $400,000, and the firm paid $150,000 in interest on its bank loans. Also, the corporation received $50,000 in dividend income (from a company in which it owned less than 20% of its shares) but paid $25,000 in the form of dividends to its own common stockholders. Calculate the corporation's tax liability. What are the firm's average and marginal tax rates?

3–6. **(Corporate income tax)** The Robbins Corporation is an oil wholesaler. The firm's sales last year were $1 million, with the cost of goods sold equal to $600,000. The firm paid interest of $200,000 and its cash operating expenses were $100,000. Also, the firm received $40,000 in dividend income from a firm in which the firm owned 22% of the shares, while paying only $10,000 in dividends to its stockholders. Depreciation expense was $50,000. Compute the firm's tax liability. Based on your answer, does management need to take any additional action? What are the firm's average and marginal tax rates?

3–7. **(Corporate income tax)** Sales for J. P. Hulett Inc. during the past year amounted to $4 million. Gross profits totaled $1 million, and operating and depreciation expenses

were $500,000 and $350,000, respectively. Dividend income for the year was $12,000, which was paid by a firm in which Hulett owns 85% of the shares. Compute the corporation's tax liability. What are the firm's average and marginal tax rates?

3–8. **(Corporate income tax)** G. R. Edwin Inc. had sales of $6 million during the past year. The cost of goods sold amounted to $3 million. Operating expenses totaled $2.6 million, and interest expense was $30,000. Determine the firm's tax liability. What are the firm's average and marginal tax rates?

3–9. **(Corporate income tax)** Meyer Inc. has taxable income (earnings before taxes) of $300,000. Calculate Meyer's federal income tax liability using the tax table in this chapter. What are the firm's average and marginal tax rates?

3–10. **(Corporate income tax)** Boisjoly Productions had taxable income of $19 million.

a. Calculate Boisjoly's federal income taxes.
b. Now calculate Boisjoly's average and marginal tax rates.

The Balance Sheet

3–11. **(Related to Checkpoint 3.2 on page 52)** **(Working with the balance sheet)** The Caraway Seed Company grows heirloom tomatoes and sells their seeds. The heirloom tomato plants are preferred by many growers for their superior flavor. At the end of the most recent year the firm had current assets of $50,000, net fixed assets of $250,000, current liabilities of $30,000, and long-term debt of $100,000.

a. Calculate Caraway's stockholders' equity.
b. What is the firm's net working capital?
c. If Caraway's current liabilities consist of $20,000 in accounts payable and $10,000 in short-term debt (notes payable), what is the firm's net working capital?

3–12. **(Related to Checkpoint 3.2 on page 52)** **(Review of financial statements)** A scrambled list of accounts from the income statement and balance sheet of Belmond, Inc. is found below:

Inventory	$ 6,500
Common stock	45,000
Cash	16,550
Operating expenses	1,350
Short-term notes payable	600
Interest expense	900
Depreciation expense	500
Sales	12,800
Accounts receivable	9,600
Accounts payable	4,800
Long-term debt	55,000
Cost of goods sold	5,750
Buildings and equipment	122,000
Accumulated depreciation	34,000
Taxes	1,440
General and administrative expense	850
Retained earnings	?

a. How much is the firm's net working capital?
b. Complete an income statement and a balance sheet for Belmond.
c. If you were asked to respond to complete parts a. and b. as part of a training exercise, what could you tell your boss about the company's financial condition based on your answers?

3–13. **(Review of financial statements)** Prepare a balance sheet and income statement for the Warner Company from the following scrambled list of items found below:

Depreciation expense	$ 66,000
Cash	225,000
Long-term debt	334,000
Sales	573,000
Accounts payable	102,000
General and administrative expense	79,000
Buildings and equipment	895,000
Notes payable	75,000
Accounts receivable	167,500
Interest expense	4,750
Accrued expenses	7,900
Common stock	289,000
Cost of goods sold	297,000
Inventory	99,300
Taxes	50,500
Accumulated depreciation	263,000
Taxes payable	53,000
Retained earnings	262,900

a. Prepare an income statement for the Warner Company.
b. Prepare a balance sheet for the Warner Company.
c. What can you say about the firm's financial condition based on these financial statements?

Cash Flow Statement

3–14. **(Related to Checkpoint 3.3 on page 60)** **(Analyzing the cash flow statement)** Goggle, Inc. is an Internet firm that has experienced a period of very rapid growth in revenues over the last four years. The cash flow statements for Goggle, Inc. spanning the period 2007–2010 are found below:

	12 Months Ending			
In Millions of U.S. Dollars	12/31/2010	12/31/2009	12/31/2008	12/31/2007
Net income	$ 4,000	$ 3,000	$ 1,500	$ 400
Depreciation expense	1,000	600	300	150
Changes in working capital	600	50	50	(250)
Cash from operating activities	$ 5,600	$ 3,650	$ 1,850	$ 300
Capital expenditures	$(3,600)	$(7,000)	$(3,300)	$(2,000)
Cash from investing activities	$(3,600)	$(7,000)	$(3,300)	$(2,000)
Interest and financing cash flow items	$ 400	$ 600	$ 0	$ 5
Total cash dividends paid	0	0	0	0
Issuance (retirement) of stock	24	2,400	4,400	1,200
Issuance (retirement) of debt	0	0	(2)	(5)
Cash from financing activities	$ 424	$ 3,000	$ 4,398	$ 1,200
Net change in cash	$ 2,424	$ (350)	$ 2,948	$ (500)

Answer the following questions using the information found in these statements:

a. Is Goggle generating positive cash flow from its operations?
b. How much did Goggle invest in new capital expenditures over the last four years?
c. Describe Goggle's sources of financing in the financial markets over the last four years.
d. Based solely on the cash flow statements for 2007 through 2010, write a brief narrative that describes the major activities of Goggle's management team over the last four years.

3–15. **(Analyzing the cash flow statement)** The cash flow statements for retailing giant BigBox, Inc. spanning the period 2007–2010 are found below:

	12 Months Ending			
In Millions of U.S. Dollars	12/31/2010	12/31/2009	12/31/2008	12/31/2007
Net income	$ 13,000	$ 12,000	$ 11,000	$ 10,000
Depreciation expense	6,500	6,300	5,000	4,000
Changes in working capital	1,200	2,300	2,400	1,000
Cash from operating activities	$ 20,700	$ 20,600	$ 18,400	$ 15,000
Capital expenditures	$ (16,000)	$ (14,500)	$ (14,000)	$ (12,300)
Cash from investing activities	$ (16,000)	$ (14,500)	$ (14,000)	$ (12,300)
Interest and financing cash flow items	$ (350)	$ (250)	$ (350)	$ 100
Total cash dividends paid	(3,600)	(2,800)	(2,500)	(2,200)
Issuance (retirement) of stock	(8,000)	(1,500)	(3,600)	(4,500)
Issuance (retirement) of debt	1,500	(100)	4,000	4,100
Cash from financing activities	$ (10,450)	$ (4,650)	$ (2,450)	$ (2,500)
Net change in cash	$ (5,750)	$ 1,450	$ 1,950	$ 200

Answer the following questions using the information found in these statements:

a. Does BigBox generate positive cash flow from its operations?
b. How much did BigBox invest in new capital expenditures over the last four years?
c. Describe BigBox's sources of financing in the financial markets over the last four years.
d. Based solely on the cash flow statement for 2007 through 2010, write a brief narrative that describes the major activities of BigBox's management team over the last four years.

Mini-Case

In the introduction to this chapter, we describe the situation faced by Gap, Inc. (GPS). We learned that the retail clothing chain had grown dramatically over the first two decades of its existence but had fallen on difficult times in 2007. Assume that you have just been hired as a new management trainee by the corporate offices of Gap and you report directly to the director of sales and marketing. Although your job is not specifically in finance, your boss is a major contributor to the firm's overall financial success and wants you to familiarize yourself with the firm's recent financial performance. Specifically, she has asked that you review the following income statements for years 2005–2008. You are to review the firm's revenues, gross profit, operating income, and net income trends over the past four years.

Gap, Inc.
Income Statements (2005–2008)

In Millions of USD (except for per share items)	2008	2007	2006	2005
Total revenue	$15,763	$15,923	$16,019	$16,267
Cost of goods sold	10,071	10,266	10,145	9,886
Gross profit	$ 5,692	$ 5,657	$ 5,874	$ 6,381
Total operating expense	4,377	4,432	4,099	4,402
Net operating income	$ 1,315	$ 1,225	$ 1,775	$ 1,979
Interest income (dxpense)	91	90	48	(108)
Income before tax	$ 1,406	$ 1,315	$ 1,823	$ 1,871
Income taxes	539	506	692	721
Net income	$ 867	$ 809	$ 1,131	$ 1,150

After contemplating the assignment you decide to calculate the gross profit margin, operating profit margin and net profit margin for each of these years. It is your hope that by evaluating these profit margins you will be able to pinpoint any problems that the firm may be experiencing.

Finally, your boss pointed out that the firm may need to raise additional capital in the near future and suggested that you review the firm's past financing decisions using both the firm's balance sheets and statement of cash flows. Specifically, she asked that you summarize your assessment of the firm's use of debt financing over the last four years.

Gap, Inc.
Balance Sheets (2005–2008)

In millions of USD (except for per share items)	2008	2007	2006	2005
Cash and short-term investments	1,901.00	2,600.00	2,987.00	3,062.00
Total inventory	1,575.00	1,796.00	1,696.00	1,814.00
Other current assets, total	610.00	633.00	556.00	1,428.00
Total current assets	4,086.00	5,029.00	5,239.00	6,304.00
Property/plant/equipment, total-gross	7,320.00	7,135.00	6,958.00	7,169.00
Other long-term assets, total	485.00	318.00	336.00	368.00
Total assets	7,838.00	8,544.00	8,821.00	10,048.00
Accounts payable	1,006.00	772.00	1,132.00	1,240.00
Accrued expenses	1,259.00	1,159.00	725.00	924.00
Notes payable/short-term debt	0.00	0.00	0.00	0.00
Current portion of long-term debt and leases	138.00	325.00	0.00	0.00
Other current liabilities	30.00	16.00	85.00	78.00
Total current liabilities	2,433.00	2,272.00	1,942.00	2,242.00
Long-term debt	50.00	188.00	513.00	1,886.00
Other liabilities, total	1,081.00	910.00	941.00	984.00
Total liabilities	3,564.00	3,370.00	3,396.00	5,112.00
Common stock	55.00	55.00	54.00	49.00
Additional paid-in capital	2,783.00	2,631.00	2,402.00	904.00
Retained earnings (accumulated deficit)	9,223.00	8,646.00	8,133.00	7,181.00
Treasury stock-common	(7,912.00)	(6,225.00)	(5,210.00)	(3,238.00)
Other equity	125.00	77.00	46.00	40.00
Total equity	4,274.00	5,174.00	5,425.00	4,936.00
Total liabilities & shareholders' equity	7,838.00	8,544.00	8,821.00	10,048.00

Legend:

Treasury stock—shares of a firm's common stock that had previously been issued to the public but which has been repurchased in the equity market by the firm.

Gap, Inc.
Statement of Cash Flows (2006–2008)

In Millions of USD (except for per share items)	2008	2007	2006
Net income	$ 833	$ 778	$ 1,113
Depreciation	547	530	625
Deferred taxes	(51)	(41)	(46)
Non-cash items	107	67	(28)
Changes in working capital	645	(84)	(113)
Cash from operating activities	**$ 2,081**	**$ 1,250**	**$ 1,551**
Capital expenditures	(682)	(572)	(600)
Other investing cash flow items, total	408	422	886
Cash from investing activities	**$ (274)**	**$ (150)**	**$ 286**
Financing cash flow items	132	213	0
Total cash dividends paid	(252)	(265)	(179)
Issuance (retirement) of stock, net	(1,700)	(1,050)	(1,861)
Issuance (retirement) of debt, net	(326)	0	0
Cash from financing activities	**$(2,146)**	**$(1,102)**	**$(2,040)**
Foreign exchange effects	33	(3)	(7)
Net change in cash	**$ (306)**	**$ (5)**	**(210)**

Deferred taxes—A liability account that reflects the accumulated difference between the amount of income tax that the firm shows each year as an expense on its financial statements and the amount of income tax, usually lower, that the firm pays to the government.

Foreign exchange effects—the cash flow consequences of foreign exchange gains (losses) during the year.