

CHAPTER 1

An Overview of Financial Management and the Financial Environment

In a global beauty contest for companies, the winner is ... Apple.

Or at least Apple is the most admired company in the world, according to Fortune magazine's annual survey. The others in the global top ten are Berkshire Hathaway, Toyota, Google, Johnson & Johnson, Procter & Gamble, FedEx, Southwest Airlines, General Electric, and Microsoft. What do these companies have that separates them from the rest of the pack?

According to a survey of executives, directors, and security analysts, these companies have very high average scores across nine attributes: (1) innovativeness, (2) quality of management, (3) long-term investment value, (4) social responsibility, (5) employee talent, (6) quality of products and services, (7) financial soundness, (8) use of corporate assets, and (9) effectiveness in doing business globally. After culling weaker companies, the final rankings are then determined by over 3,700 experts from a wide variety of industries.

What do these companies have in common? First, they have an incredible focus on using technology to understand their customers, reduce costs, reduce inventory, and speed up product delivery. Second, they continually innovate and invest in ways to differentiate their products. Some are known for game-changing products, such as Apple's touch screen iPhone or Toyota's hybrid Prius. Others continually introduce small improvements, such as Southwest Airline's streamlined boarding procedures.

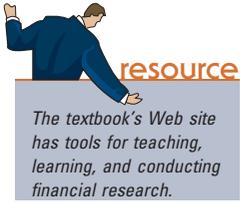
In addition to their acumen with technology and customers, they are also on the leading edge when it comes to training employees and providing a workplace in which people can thrive.

In a nutshell, these companies reduce costs by having innovative production processes, they create value for customers by providing high-quality products and services, and they create value for employees by training and fostering an environment that allows employees to utilize all of their skills and talents.

Do investors benefit from this focus on processes, customers, and employees? During the most recent 5-year period, these ten companies posted an average annual stock return of 6.9%, which is not too shabby when compared with the -4.1% average annual return of the S&P 500. These superior returns are due to superior cash flow generation. But, as you will see throughout this book, a company can generate cash flow only if it also creates value for its customers, employees, and suppliers.

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See <http://money.cnn.com/magazines/fortune/> for updates on the ranking.



This chapter should give you an idea of what financial management is all about, including an overview of the financial markets in which corporations operate. Before going into details, let's look at the big picture. You're probably in school because you want an interesting, challenging, and rewarding career. To see where finance fits in, here's a five-minute MBA.

1.1 THE FIVE-MINUTE MBA

Okay, we realize you can't get an MBA in five minutes. But just as an artist quickly sketches the outline of a picture before filling in the details, we can sketch the key elements of an MBA education. The primary objective of an MBA program is to provide managers with the knowledge and skills they need to run successful companies, so we start our sketch with some common characteristics of successful companies. In particular, all successful companies are able to accomplish two main goals:

1. All successful companies identify, create, and deliver products or services that are highly valued by customers—so highly valued that customers choose to purchase from them rather than from their competitors.
2. All successful companies sell their products/services at prices that are high enough to cover costs and to compensate owners and creditors for the use of their money and their exposure to risk.

It's easy to talk about satisfying customers and investors, but it's not so easy to accomplish these goals. If it were, then all companies would be successful, and you wouldn't need an MBA!

The Key Attributes of Successful Companies

First, *successful companies have skilled people* at all levels inside the company, including leaders, managers, and a capable workforce.

Second, *successful companies have strong relationships* with groups outside the company. For example, successful companies develop win-win relationships with suppliers and excel in customer relationship management.

Third, *successful companies have enough funding* to execute their plans and support their operations. Most companies need cash to purchase land, buildings, equipment, and materials. Companies can reinvest a portion of their earnings, but most growing companies must also raise additional funds externally by some combination of selling stock and/or borrowing in the financial markets.

Just as a stool needs all three legs to stand, a successful company must have all three attributes: skilled people, strong external relationships, and sufficient capital.

The MBA, Finance, and Your Career

To be successful, a company must meet its first main goal: identifying, creating, and delivering highly valued products and services to its customers. This requires that it possess all three of the key attributes mentioned above. Therefore, it's not surprising that most of your MBA courses are directly related to these attributes. For example, courses in economics, communication, strategy, organizational behavior, and human resources should prepare you for a leadership role and enable you to effectively manage your company's workforce. Other courses, such as marketing, operations management, and information technology, increase your knowledge of specific disciplines, enabling you to develop the efficient business processes and strong external relationships your company needs. Portions of *this* finance course will address





THE GLOBAL ECONOMIC CRISIS

Say Hello to the Global Economic Crisis!

Imagine a story of greed and reckless daring, of fortunes made and fortunes lost, of enormous corporations failing and even governments brought to the brink of ruin. No, this isn't a box-office blockbuster, but instead is the situation facing the world's financial markets and economies as we write this in mid-2009.

What exactly is the crisis? At the risk of oversimplification, many of the world's individuals, financial institutions, and governments borrowed too much money and used those borrowed funds to make speculative investments. As those investments are turning out to be worth less than the amounts owed by the borrowers, widespread bankruptcies, buyouts, and restructurings for both borrowers and lenders are occurring. This in turn is reducing the supply of available funds that finan-

cial institutions normally lend to creditworthy individuals, manufacturers, and retailers. Without access to credit, consumers are buying less, manufacturers are producing less, and retailers are selling less—all of which leads to layoffs. Because of falling consumption, shrinking production, and higher unemployment, the National Bureau of Economic Research declared that the United States entered a recession in December 2007. In fact, this is a global downturn, and most economists expect it to be severe and lengthy.

As we progress through this chapter and the rest of the book, we will discuss different aspects of the crisis. For real-time updates, go to the Global Economic Crisis (GEC) Resource Center at <http://www.cengage.com/gec> and log in.

raising the capital your company needs to implement its plans. In short, your MBA courses will give you the skills you need to help a company achieve its first goal: producing goods and services that customers want.

Recall, though, that it's not enough just to have highly valued products and satisfied customers. Successful companies must also meet their second main goal, which is generating enough cash to compensate the investors who provided the necessary capital. To help your company accomplish this second goal, you must be able to evaluate any proposal, whether it relates to marketing, production, strategy, or any other area, and implement only the projects that add value for your investors. For this, you must have expertise in finance, no matter your major. Thus, finance is a critical part of an MBA education, and it will help you throughout your career.

Self-Test

What are the goals of successful companies?

What are the three key attributes common to all successful companies?

How does expertise in finance help a company become successful?

1.2 THE CORPORATE LIFE CYCLE

Many major corporations, including Apple Computer and Hewlett-Packard, began life in a garage or basement. How is it possible for such companies to grow into the giants we see today? No two companies develop in exactly the same way, but the following sections describe some typical stages in the corporate life cycle.

Starting Up as a Proprietorship

Many companies begin as a **proprietorship**, which is an unincorporated business owned by one individual. Starting a business as a proprietor is easy—one merely begins business operations after obtaining any required city or state business licenses. The proprietorship has three important advantages: (1) it is easily and inexpensively

Columbus Was Wrong—the World *Is* Flat! And Hot, and Crowded!

In his best-selling book *The World Is Flat*, Thomas L. Friedman argues that many of the barriers that long protected businesses and employees from global competition have been broken down by dramatic improvements in communication and transportation technologies. The result is a level playing field that spans the entire world. As we move into the information age, any work that can be digitized will flow to those able to do it at the lowest cost, whether they live in San Jose's Silicon Valley or Bangalore, India. For physical products, supply chains now span the world. For example, raw materials might be extracted in South America, fabricated into electronic components in Asia, and then used in computers assembled in the United States, with the final product being sold in Europe.

Similar changes are occurring in the financial markets, as capital flows across the globe to those who can best use it. Indeed, China raised more money through initial public offerings than any other country in 2006, and the euro is becoming the currency of choice for denominating global bond issues.

Unfortunately, a dynamic world can bring runaway growth, which can lead to significant environmental problems and energy shortages. Friedman describes these problems in another bestseller, *Hot, Flat, and Crowded*. In a flat world, the keys to success are knowledge, skills, and a great work ethic. In a flat, hot, and crowded world, these factors must be combined with innovation and creativity to deal with truly global problems.

formed, (2) it is subject to few government regulations, and (3) its income is not subject to corporate taxation but is taxed as part of the proprietor's personal income.

However, the proprietorship also has three important limitations: (1) it may be difficult for a proprietorship to obtain the capital needed for growth; (2) the proprietor has unlimited personal liability for the business's debts, which can result in losses that exceed the money invested in the company (creditors may even be able to seize a proprietor's house or other personal property!); and (3) the life of a proprietorship is limited to the life of its founder. For these three reasons, sole proprietorships are used primarily for small businesses. In fact, proprietorships account for only about 13% of all sales, based on dollar values, even though about 80% of all companies are proprietorships.

More Than One Owner: A Partnership

Some companies start with more than one owner, and some proprietors decide to add a partner as the business grows. A **partnership** exists whenever two or more persons or entities associate to conduct a noncorporate business for profit. Partnerships may operate under different degrees of formality, ranging from informal, oral understandings to formal agreements filed with the secretary of the state in which the partnership was formed. Partnership agreements define the ways any profits and losses are shared between partners. A partnership's advantages and disadvantages are generally similar to those of a proprietorship.

Regarding liability, the partners can potentially lose all of their personal assets, even assets not invested in the business, because under partnership law, each partner is liable for the business's debts. Therefore, in the event the partnership goes bankrupt, if any partner is unable to meet his or her pro rata liability then the remaining partners must make good on the unsatisfied claims, drawing on their personal assets to the extent necessary. To avoid this, it is possible to limit the liabilities of some of the partners by establishing a **limited partnership**, wherein certain partners are designated **general partners** and others **limited partners**. In a limited partnership, the limited partners can lose only the amount of their investment in the partnership,

while the general partners have unlimited liability. However, the limited partners typically have no control—it rests solely with the general partners—and their returns are likewise limited. Limited partnerships are common in real estate, oil, equipment leasing ventures, and venture capital. However, they are not widely used in general business situations because usually no one partner is willing to be the general partner and thus accept the majority of the business's risk, and none of the others are willing to be limited partners and give up all control.

In both regular and limited partnerships, at least one partner is liable for the debts of the partnership. However, in a **limited liability partnership (LLP)**, sometimes called a **limited liability company (LLC)**, all partners enjoy limited liability with regard to the business's liabilities, and their potential losses are limited to their investment in the LLP. Of course, this arrangement increases the risk faced by an LLP's lenders, customers, and suppliers.

Many Owners: A Corporation

Most partnerships have difficulty attracting substantial amounts of capital. This is generally not a problem for a slow-growing business, but if a business's products or services really catch on, and if it needs to raise large sums of money to capitalize on its opportunities, then the difficulty in attracting capital becomes a real drawback. Thus, many growth companies, such as Hewlett-Packard and Microsoft, began life as a proprietorship or partnership, but at some point their founders decided to convert to a corporation. On the other hand, some companies, in anticipation of growth, actually begin as corporations. A **corporation** is a legal entity created under state laws, and it is separate and distinct from its owners and managers. This separation gives the corporation three major advantages: (1) *unlimited life*—a corporation can continue after its original owners and managers are deceased; (2) *easy transferability of ownership interest*—ownership interests are divided into shares of stock, which can be transferred far more easily than can proprietorship or partnership interests; and (3) *limited liability*—losses are limited to the actual funds invested.

To illustrate limited liability, suppose you invested \$10,000 in a partnership that then went bankrupt and owed \$1 million. Because the owners are liable for the debts of a partnership, you could be assessed for a share of the company's debt, and you could be held liable for the entire \$1 million if your partners could not pay their shares. On the other hand, if you invested \$10,000 in the stock of a corporation that went bankrupt, your potential loss on the investment would be limited to your \$10,000 investment.¹ Unlimited life, easy transferability of ownership interest, and limited liability make it much easier for corporations than proprietorships or partnerships to raise money in the financial markets and grow into large companies.

The corporate form offers significant advantages over proprietorships and partnerships, but it also has two disadvantages: (1) Corporate earnings may be subject to double taxation—the earnings of the corporation are taxed at the corporate level, and then earnings paid out as dividends are taxed again as income to the stockholders. (2) Setting up a corporation involves preparing a charter, writing a set of bylaws, and filing the many required state and federal reports, which is more complex and time-consuming than creating a proprietorship or a partnership.

The **charter** includes the following information: (1) name of the proposed corporation, (2) types of activities it will pursue, (3) amount of capital stock, (4) number of

¹In the case of very small corporations, the limited liability may be fiction because lenders frequently require personal guarantees from the stockholders.

directors, and (5) names and addresses of directors. The charter is filed with the secretary of the state in which the firm will be incorporated, and when it is approved, the corporation is officially in existence.² After the corporation begins operating, quarterly and annual employment, financial, and tax reports must be filed with state and federal authorities.

The **bylaws** are a set of rules drawn up by the founders of the corporation. Included are such points as (1) how directors are to be elected (all elected each year or perhaps one-third each year for 3-year terms); (2) whether the existing stockholders will have the first right to buy any new shares the firm issues; and (3) procedures for changing the bylaws themselves, should conditions require it.

There are actually several different types of corporations. Professionals such as doctors, lawyers, and accountants often form a **professional corporation (PC)** or a **professional association (PA)**. These types of corporations do not relieve the participants of professional (malpractice) liability. Indeed, the primary motivation behind the professional corporation was to provide a way for groups of professionals to incorporate and thus avoid certain types of unlimited liability yet still be held responsible for professional liability.

Finally, if certain requirements are met, particularly with regard to size and number of stockholders, owners can establish a corporation but elect to be taxed as if the business were a proprietorship or partnership. Such firms, which differ not in organizational form but only in how their owners are taxed, are called **S corporations**.

Growing and Managing a Corporation

Once a corporation has been established, how does it evolve? When entrepreneurs start a company, they usually provide all the financing from their personal resources, which may include savings, home equity loans, or even credit cards. As the corporation grows, it will need factories, equipment, inventory, and other resources to support its growth. In time, the entrepreneurs usually deplete their own resources and must turn to external financing. Many young companies are too risky for banks, so the founders must sell stock to outsiders, including friends, family, private investors (often called angels), or venture capitalists. If the corporation continues to grow, it may become successful enough to attract lending from banks, or it may even raise additional funds through an **initial public offering (IPO)** by selling stock to the public at large. After an IPO, corporations support their growth by borrowing from banks, issuing debt, or selling additional shares of stock. In short, a corporation's ability to grow depends on its interactions with the financial markets, which we describe in much more detail later in this chapter.

For proprietorships, partnerships, and small corporations, the firm's owners are also its managers. This is usually not true for a large corporation, which means that large firms' stockholders, who are its owners, face a serious problem. What is to prevent managers from acting in their own best interests, rather than in the best interests of the stockholder/owners? This is called an **agency problem**, because managers are hired as agents to act on behalf of the owners. Agency problems can be addressed by a company's **corporate governance**, which is the set of rules that control the company's behavior towards its directors, managers, employees, shareholders, creditors, customers, competitors, and community. We will have much more to say about

²More than 60% of major U.S. corporations are chartered in Delaware, which has, over the years, provided a favorable legal environment for corporations. It is not necessary for a firm to be headquartered, or even to conduct operations, in its state of incorporation, or even in its country of incorporation.

agency problems and corporate governance throughout the book, especially in Chapters 13 and 14.³

Self-Test

What are the key differences between proprietorships, partnerships, and corporations?

Describe some special types of partnerships and corporations, and explain the differences among them.

1.3 THE PRIMARY OBJECTIVE OF THE CORPORATION: VALUE MAXIMIZATION

Shareholders are the owners of a corporation, and they purchase stocks because they want to earn a good return on their investment without undue risk exposure. In most cases, shareholders elect directors, who then hire managers to run the corporation on a day-to-day basis. Because managers are supposed to be working on behalf of shareholders, they should pursue policies that enhance shareholder value. Consequently, throughout this book we operate on the assumption that management's primary objective is *stockholder wealth maximization*.

The **market price** is the stock price that we observe in the financial markets. We later explain in detail how stock prices are determined, but for now it is enough to say that a company's market price incorporates the information available to investors. If the market price reflects all *relevant* information, then the observed price is also the **intrinsic, or fundamental, price**. However, investors rarely have all relevant information. For example, companies report most major decisions, but they sometimes withhold selected information to prevent competitors from gaining strategic advantages.

Unfortunately, some managers deliberately mislead investors by taking actions to make their companies appear more valuable than they truly are. Sometimes these actions are illegal, such as those taken by the senior managers at Enron. Sometimes the actions are legal but are taken to push the current market price above its fundamental price in the short term. For example, suppose a utility's stock price is equal to its fundamental price of \$50 per share. What would happen if the utility substantially reduced its tree-trimming program but didn't tell investors? This would lower current costs and thus boost current earnings and current cash flow, but it would also lead to major expenditures in the future when falling limbs damage the lines. If investors were told about the major repair costs facing the company, the market price would immediately drop to a new fundamental value of \$45. But if investors were kept in the dark, they might misinterpret the higher-than-expected current earnings, and the market price might go up to \$52. Investors would eventually understand the situation when the company later incurred large costs to repair the damaged lines; when that happened, the price would fall to its fundamental value of \$45.

Consider this hypothetical sequence of events. A company's managers deceived investors, and the price rose to \$52 when it would have fallen to \$45 if not for the deception. Of course, this benefited those who owned the stock at the time of the deception, including managers with stock options. But when the deception came to light, those

³The classic work on agency theory is Michael C. Jensen and William H. Meckling's "Theory of the Firm, Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics*, October 1976, 305–360. Another article by Jensen specifically addresses these issues; see "Value Maximization, Stakeholder Theory, and the Corporate Objective Function," *Journal of Applied Corporate Finance*, Fall 2001, 8–21. For an overview of corporate governance, see Stuart Gillan, "Recent Developments in Corporate Governance: An Overview," *Journal of Corporate Finance*, June 2006, 381–402.

Ethics for Individuals and Businesses

A firm's commitment to business ethics can be measured by the tendency of its employees, from the top down, to adhere to laws, regulations, and moral standards relating to product safety and quality, fair employment practices, fair marketing and selling practices, the use of confidential information for personal gain, community involvement, and illegal payments to obtain business.

Ethical Dilemmas

When conflicts arise between profits and ethics, sometimes legal and ethical considerations make the choice obvious. At other times the right choice isn't clear. For example, suppose Norfolk Southern's managers know that its trains are polluting the air, but the amount of pollution is within legal limits and further reduction would be costly, causing harm to their shareholders. Are the managers ethically bound to reduce pollution? Aren't they also ethically bound to act in their shareholders' best interests? This is clearly a dilemma.

Ethical Responsibility

Over the past few years, illegal ethical lapses have led to a number of bankruptcies, which have raised this question: Were the *companies* unethical, or was it just a few of their *employees*? Arthur Andersen, an accounting firm, audited Enron, WorldCom, and several other

companies that committed accounting fraud. The U.S. Justice Department concluded that Andersen itself was guilty because it fostered a climate in which unethical behavior was permitted, and it built an incentive system that made such behavior profitable to both the perpetrators and the firm itself. As a result, Andersen went out of business. Anderson was later judged to be not guilty, but by the time the judgment was rendered the company was already out of business. People simply did not want to deal with a tainted accounting firm.

Protecting Ethical Employees

If employees discover questionable activities or are given questionable orders, should they obey their bosses' orders, refuse to obey those orders, or report the situation to a higher authority, such as the company's board of directors, its auditors, or a federal prosecutor? In 2002 Congress passed the Sarbanes-Oxley Act, with a provision designed to protect "whistle-blowers." If an employee reports corporate wrongdoing and later is penalized, he or she can ask the Occupational Safety and Health Administration to investigate the situation, and if the employee was improperly penalized, the company can be required to reinstate the person, along with back pay and a sizable penalty award. Several big awards have been handed out since the act was passed.

stockholders who still owned the stock suffered a significant loss, ending up with stock worth less than its original fundamental value. If the managers cashed in their stock options prior to this, then only the stockholders were hurt by the deception. Because the managers were hired to act in the interests of stockholders, their deception was a breach of their fiduciary responsibility. In addition, the managers' deception would damage the company's reputation, making it harder to raise capital in the future.

Therefore, when we say management's objective should be to maximize stockholder wealth, we really mean it is to *maximize the fundamental price of the firm's common stock*, not just the current market price. Firms do, of course, have other objectives; in particular, the managers who make the actual decisions are interested in their own personal satisfaction, in their employees' welfare, and in the good of their communities and of society at large. Still, for the reasons set forth in the following sections, *maximizing intrinsic stock value is the most important objective for most corporations.*

Intrinsic Stock Value Maximization and Social Welfare

If a firm attempts to maximize its intrinsic stock value, is this good or bad for society? In general, it is good. Aside from such illegal actions as fraudulent accounting, ex-



The Security Industry Association's Web site, <http://www.sifma.org>, is a great source of information. To find data on stock ownership, go to its Web page, click on Research, choose Surveys, then Equity/Bond Ownership in America. You can purchase the most recent data, or look at the prior year for free.

ploiting monopoly power, violating safety codes, and failing to meet environmental standards, *the same actions that maximize intrinsic stock values also benefit society*. Here are some of the reasons:

1. **To a large extent, the owners of stock are society.** Seventy-five years ago this was not true, because most stock ownership was concentrated in the hands of a relatively small segment of society consisting of the wealthiest individuals. Since then, there has been explosive growth in pension funds, life insurance companies, and mutual funds. These institutions now own more than 61% of all stock, which means that most individuals have an indirect stake in the stock market. In addition, more than 47% of all U.S. households now own stock or bonds directly, as compared with only 32.5% in 1989. Thus, most members of society now have an important stake in the stock market, either directly or indirectly. Therefore, when a manager takes actions to maximize the stock price, this improves the quality of life for millions of ordinary citizens.
2. **Consumers benefit.** Stock price maximization requires efficient, low-cost businesses that produce high-quality goods and services at the lowest possible cost. This means that companies must develop products and services that consumers want and need, which leads to new technology and new products. Also, companies that maximize their stock price must generate growth in sales by creating value for customers in the form of efficient and courteous service, adequate stocks of merchandise, and well-located business establishments.

People sometimes argue that firms, in their efforts to raise profits and stock prices, increase product prices and gouge the public. In a reasonably competitive economy, which we have, prices are constrained by competition and consumer resistance. If a firm raises its prices beyond reasonable levels, it will simply lose its market share. Even giant firms such as Dell and Coca-Cola lose business to domestic and foreign competitors if they set prices above the level necessary to cover production costs plus a “normal” profit. Of course, firms *want* to earn more, and they constantly try to cut costs, develop new products, and so on, and thereby earn above-normal profits. Note, though, that if they are indeed successful and do earn above-normal profits, those very profits will attract competition, which will eventually drive prices down. So again, the main long-term beneficiary is the consumer.

3. **Employees benefit.** There are situations where a stock increases when a company announces plans to lay off employees, but viewed over time this is the exception rather than the rule. In general, companies that successfully increase stock prices also grow and add more employees, thus benefiting society. Note too that many governments across the world, including U.S. federal and state governments, are privatizing some of their state-owned activities by selling these operations to investors. Perhaps not surprisingly, the sales and cash flows of recently privatized companies generally improve. Moreover, studies show that newly privatized companies tend to grow and thus require more employees when they are managed with the goal of stock price maximization.

One of *Fortune* magazine's key criteria in determining its list of most-admired companies is a company's ability to attract, develop, and retain talented people. The results consistently show high correlations among admiration for a company, its ability to satisfy employees, and its creation of value for shareholders. Employees find that it is both fun and financially rewarding to work for successful companies. Thus, successful companies get the cream of the employee crop, and skilled, motivated employees are one of the keys to corporate success.

Managerial Actions to Maximize Shareholder Wealth

What types of actions can managers take to maximize shareholder wealth? To answer this question, we first need to ask, “What determines a firm’s value?” In a nutshell, it is *a company’s ability to generate cash flows now and in the future*.

We address different aspects of this in detail throughout the book, but we can lay out three basic facts now: (1) any financial asset, including a company’s stock, is valuable only to the extent that it generates cash flows; (2) the timing of cash flows matters—cash received sooner is better; and (3) investors are averse to risk, so all else equal, they will pay more for a stock whose cash flows are relatively certain than for one whose cash flows are more risky. Because of these three facts, managers can enhance their firm’s value by increasing the size of the expected cash flows, by speeding up their receipt, and by reducing their risk.

The cash flows that matter are called **free cash flows (FCF)**, not because they are free, but because they are available (or free) for distribution to all of the company’s investors, including creditors and stockholders. You will learn how to calculate free cash flows in Chapter 2, but for now you should know that free cash flows depend on three factors: (1) sales revenues, (2) operating costs and taxes, and (3) required new investments in operating capital. In particular, free cash flow is equal to:

$$\begin{aligned} \text{FCF} = & \text{Sales revenues} - \text{Operating costs} - \text{Operating taxes} \\ & - \text{Required new investments in operating capital} \end{aligned}$$

Brand managers and marketing managers can increase sales (and prices) by truly understanding their customers and then designing goods and services that customers want. Human resource managers can improve productivity through training and employee retention. Production and logistics managers can improve profit margins, reduce inventory, and improve throughput at factories by implementing supply chain management, just-in-time inventory management, and lean manufacturing. In fact, all managers make decisions that can increase free cash flows.

One of the financial manager’s roles is to help others see how their actions affect the company’s ability to generate cash flow and, hence, its intrinsic value. Financial managers also must decide *how to finance the firm*. In particular, they must choose the mix of debt and equity that should be used and the specific types of debt and equity securities that should be issued. They must also decide what percentage of current earnings should be retained and reinvested rather than paid out as dividends. Along with these financing decisions, the general level of interest rates in the economy, the risk of the firm’s operations, and stock market investors’ overall attitude toward risk determine the rate of return that is required to satisfy a firm’s investors. This rate of return from an investor’s perspective is a cost from the company’s point of view. Therefore, the rate of return required by investors is called the **weighted average cost of capital (WACC)**.

The relationship between a firm’s fundamental value, its free cash flows, and its cost of capital is defined by the following equation:

$$\text{Value} = \frac{\text{FCF}_1}{(1 + \text{WACC})^1} + \frac{\text{FCF}_2}{(1 + \text{WACC})^2} + \frac{\text{FCF}_3}{(1 + \text{WACC})^3} + \cdots + \frac{\text{FCF}_\infty}{(1 + \text{WACC})^\infty} \quad (1-1)$$

We will explain how to use this equation in later chapters, but for now note that (1) a growing firm often needs to raise external funds in the financial markets and

Corporate Scandals and Maximizing Stock Price

The list of corporate scandals seems to go on forever: Sunbeam, Enron, ImClone, WorldCom, Tyco, Adelphia At first glance, it's tempting to say, "Look what happens when managers care only about maximizing stock price." But a closer look reveals a much different story. In fact, if these managers were trying to maximize stock price, they failed dismally, given the resulting values of these companies.

Although details vary from company to company, a few common themes emerge. First, managerial compensation was linked to the *short-term* performance of the stock price via poorly designed stock option and stock grant programs. This provided managers with a powerful incentive to drive up the stock price at the option vesting date without worrying about the future. Second, it is virtually impossible to take *legal and ethical* actions that drive up the stock price in the short term without harming it in the long term because the value of a company is based on all of its future free cash flows and not just cash flows in the immediate future. Because legal and ethical actions to quickly drive up the stock price didn't exist (other than the

old-fashioned ones, such as increasing sales, cutting costs, or reducing capital requirements), these managers began bending a few rules. Third, as they initially got away with bending rules, it seems that their egos and hubris grew to such an extent that they felt they were above all rules, so they began breaking even more rules.

Stock prices did go up, at least temporarily, but as Abraham Lincoln said, "You can't fool all of the people all of the time." As the scandals became public, the stocks' prices plummeted, and in some cases the companies were ruined.

There are several important lessons to be learned from these examples. First, people respond to incentives, and poorly designed incentives can cause disastrous results. Second, ethical violations usually begin with small steps, so if stockholders want managers to avoid large ethical violations, then they shouldn't let them make the small ones. Third, there is no shortcut to creating lasting value. It takes hard work to increase sales, cut costs, and reduce capital requirements, but this is the formula for success.

(2) the actual price of a firm's stock is determined in those markets. Therefore, the rest of this chapter focuses on financial markets.

Self-Test

What should be management's primary objective?

How does maximizing the fundamental stock price benefit society?

Free cash flow depends on what three factors?

How is a firm's fundamental value related to its free cash flows and its cost of capital?

1.4 AN OVERVIEW OF THE CAPITAL ALLOCATION PROCESS

Businesses often need capital to implement growth plans; governments require funds to finance building projects; and individuals frequently want loans to purchase cars, homes, and education. Where can they get this money? Fortunately, there are some individuals and firms with incomes greater than their expenditures. In contrast to William Shakespeare's advice, most individuals and firms are both borrowers and lenders. For example, an individual might borrow money with a car loan or a home mortgage but might also lend money through a bank savings account. In the aggregate, individuals are net savers and provide most of the funds ultimately used by non-financial corporations. Although most nonfinancial corporations own some financial securities, such as short-term Treasury bills, nonfinancial corporations are net borrowers in the aggregate. It should be no surprise to you that in the United States

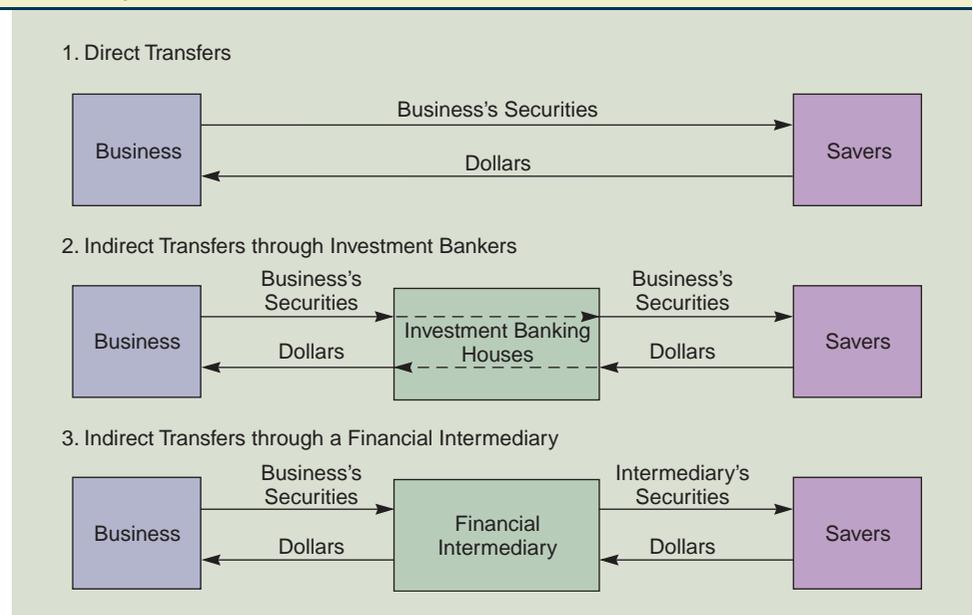
federal, state, and local governments are also net borrowers in the aggregate (although many foreign governments, such as those of China and oil-producing countries, are actually net lenders). Banks and other financial corporations raise money with one hand and invest it with the other. For example, a bank might raise money from individuals in the form of a savings account and then lend most of that money to business customers. In the aggregate, financial corporations borrow slightly more than they lend.

Transfers of capital between savers and those who need capital take place in three different ways. Direct transfers of money and securities, as shown in Panel 1 of Figure 1-1, occur when a business (or government) sells its securities directly to savers. The business delivers its securities to savers, who in turn provide the firm with the money it needs. For example, a privately held company might sell shares of stock directly to a new shareholder, or the U.S. government might sell a Treasury bond directly to an individual investor.

As shown in Panel 2, indirect transfers may go through an **investment banking house** such as Goldman Sachs, which *underwrites* the issue. An underwriter serves as a middleman and facilitates the issuance of securities. The company sells its stocks or bonds to the investment bank, which in turn sells these same securities to savers. Because new securities are involved and the corporation receives the proceeds of the sale, this is a “primary” market transaction.

Transfers can also be made through a **financial intermediary** such as a bank or mutual fund, as shown in Panel 3. Here the intermediary obtains funds from savers in exchange for its own securities. The intermediary then uses this money to purchase and then hold businesses’ securities. For example, a saver might give dollars to a bank and receive a certificate of deposit, and then the bank might lend the money to a small business, receiving in exchange a signed loan. Thus, intermediaries literally create new types of securities.

FIGURE 1-1 Diagram of the Capital Allocation Process



There are three important characteristics of the capital allocation process. First, new financial securities are created. Second, financial institutions are often involved. Third, allocation between providers and users of funds occurs in financial markets. The following sections discuss each of these characteristics.

Self-Test

Identify three ways that capital is transferred between savers and borrowers. Distinguish between the roles played by investment banking houses and financial intermediaries.

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You can access current and historical interest rates and economic data from the Federal Reserve Economic Data (FRED) site at <http://www.stls.frb.org/fred/>.

1.5 FINANCIAL SECURITIES

The variety of financial securities is limited only by human creativity, ingenuity, and governmental regulations. At the risk of oversimplification, we can classify most financial securities by the type of claim and the time until maturity. In addition, some securities actually are created from packages of other securities. We discuss the key aspects of financial securities in this section.

Type of Claim: Debt, Equity, or Derivatives

Financial securities are simply pieces of paper with contractual provisions that entitle their owners to specific rights and claims on specific cash flows or values. Debt instruments typically have specified payments and a specified maturity. For example, an Alcoa bond might promise to pay 10% interest for 30 years, at which time it promises to make a \$1,000 principal payment. If debt matures in more than a year, it is called a *capital market security*. Thus, the Alcoa bond in this example is a capital market security.

If the debt matures in less than a year, it is a *money market security*. For example, Home Depot might expect to receive \$300,000 in 75 days, but it needs cash now. Home Depot might issue commercial paper, which is essentially an IOU. In this example, Home Depot might agree to pay \$300,000 in 75 days in exchange for \$297,000 today. Thus, commercial paper is a money market security.

Equity instruments are a claim upon a residual value. For example, Alcoa's stockholders are entitled to the cash flows generated by Alcoa after its bondholders, creditors, and other claimants have been satisfied. Because stock has no maturity date, it is a capital market security.

Notice that debt and equity represent claims upon the cash flows generated by real assets, such as the cash flows generated by Alcoa's factories and operations. In contrast, **derivatives** are securities whose values depend on, or are *derived* from, the values of some other traded assets. For example, options and futures are two important types of derivatives, and their values depend on the prices of other assets. An option on Alcoa stock or a futures contract to buy pork bellies are examples of derivatives. We discuss options in Chapter 8 and in *Web Extension 1A*, which provides a brief overview of options and other derivatives.

Some securities are a mix of debt, equity, and derivatives. For example, preferred stock has some features like debt and some like equity, while convertible debt has both debt-like and option-like features.

We discuss these and other financial securities in detail later in the book, but Table 1-1 provides a summary of the most important conventional financial securities. We discuss rates of return later in this chapter, but notice now in Table 1-1 that interest rates tend to increase with the maturity and risk of the security.



TABLE 1-1 Summary of Major Financial Instruments

INSTRUMENT	MAJOR PARTICIPANTS	RISK	ORIGINAL MATURITY	RATES OF RETURN ON 1/08/09 ^a
U.S. Treasury bills	Sold by U.S. Treasury	Default-free	91 days to 1 year	0.41%
Bankers' acceptances	A firm's promise to pay, guaranteed by a bank	Low if strong bank guarantees	Up to 180 days	1.5%
Commercial paper	Issued by financially secure firms to large investors	Low default risk	Up to 270 days	0.28%
Negotiable certificates of deposit (CDs)	Issued by major banks to large investors	Depends on strength of issuer	Up to 1 year	1.58%
Money market mutual funds	Invest in short-term debt; held by individuals and businesses	Low degree of risk	No specific maturity (instant liquidity)	1.27%
Eurodollar market time deposits	Issued by banks outside U.S.	Depends on strength of issuer	Up to 1 year	2.60%
Consumer credit loans	Loans by banks/credit unions/finance companies	Risk is variable	Variable	Variable
Commercial loans	Loans by banks to corporations	Depends on borrower	Up to 7 years	Tied to prime rate (3.25%) or LIBOR (2.02%) ^b
U.S. Treasury notes and bonds	Issued by U.S. government	No default risk, but price falls if interest rates rise	2 to 30 years	3.04%
Mortgages	Loans secured by property	Risk is variable	Up to 30 years	5.02%
Municipal bonds	Issued by state and local governments to individuals and institutions	Riskier than U.S. government bonds, but exempt from most taxes	Up to 30 years	5.02%
Corporate bonds	Issued by corporations to individuals and institutions	Riskier than U.S. government debt; depends on strength of issuer	Up to 40 years ^c	5.03%
Leases	Similar to debt; firms lease assets rather than borrow and then buy them	Risk similar to corporate bonds	Generally 3 to 20 years	Similar to bond yields
Preferred stocks	Issued by corporations to individuals and institutions	Riskier than corporate bonds	Unlimited	6% to 9%
Common stocks ^d	Issued by corporations to individuals and institutions	Riskier than preferred stocks	Unlimited	9% to 15%

^aData are from *The Wall Street Journal* (<http://online.wsj.com>) or the *Federal Reserve Statistical Release* (<http://www.federalreserve.gov/releases/H15/update>). Bankers' acceptances assume a 3-month maturity. Money market rates are for the Merrill Lynch Ready Assets Trust. The corporate bond rate is for AAA-rated bonds.

^bThe prime rate is the rate U.S. banks charge to good customers. LIBOR (London Interbank Offered Rate) is the rate that U.K. banks charge one another.

^cA few corporations have issued 100-year bonds; however, most have issued bonds with maturities of less than 40 years.

^dCommon stocks are expected to provide a "return" in the form of dividends and capital gains rather than interest. Of course, if you buy a stock, your *actual* return may be considerably higher or lower than your *expected* return.

Some securities are created from packages of other securities, a process called *securitization*. The misuse of securitized assets is one of the primary causes of the global financial crisis, so we discuss securitization next.

The Process of Securitization

Many types of assets can be securitized, but we will focus on mortgages because they played such an important role in the global financial crisis. At one time, most mortgages were made by **savings and loan associations (S&Ls)**, which took in the vast majority of their deposits from individuals who lived in nearby neighborhoods. The S&Ls pooled these deposits and then lent money to people in the neighborhood in the form of fixed-rate mortgages, which were pieces of paper signed by borrowers promising to make specified payments to the S&L. The new homeowners paid principal and interest to the S&L, which then paid interest to its depositors and reinvested the principal repayments in other mortgages. This was clearly better than having individuals lend directly to aspiring homeowners, because a single individual might not have enough money to finance an entire house nor the expertise to know if the borrower was creditworthy. Note that the S&Ls were government-chartered institutions, and they obtained money in the form of immediately withdrawable deposits and then invested most of it in the form of mortgages with fixed interest rates and on individual homes. Also, initially the S&Ls were not permitted to have branch operations—they were limited to one office so as to maintain their local orientation.

These restrictions had important implications. First, in the 1950s there was a massive migration of people to the west, so there was a strong demand for funds in that area. However, the wealthiest savers were in the east. That meant that mortgage interest rates were much higher in California and other western states than in New York and the east. This created disequilibrium, something that can't exist forever in financial markets.

Second, note that the S&Ls' assets consisted mainly of long-term, fixed-rate mortgages, but their liabilities were in the form of deposits that could be withdrawn immediately. The combination of long-term assets and short-term liabilities created another problem. If the overall level of interest rates increased, the S&Ls would have to increase the rates they paid on deposits or else savers would take their money elsewhere. However, the S&Ls couldn't increase the rates on their outstanding mortgages because these mortgages had fixed interest rates. This problem came to a head in the 1960s, when the Vietnam War led to inflation, which pushed up interest rates. At this point, the "money market fund" industry was born, and it literally sucked money out of the S&Ls, forcing many of them into bankruptcy.

The government responded by giving the S&Ls broader lending powers, permitting nationwide branching, and allowing them to obtain funds as long-term debt in addition to immediately withdrawable deposits. Unfortunately, these changes had another set of unintended consequences. S&L managers who had previously dealt with a limited array of investments and funding choices in local communities were suddenly allowed to expand their scope of operations. Many of these inexperienced S&L managers made poor business decisions and the result was disastrous—virtually the entire S&L industry collapsed, with many S&Ls going bankrupt or being acquired in shotgun mergers with commercial banks.

The demise of the S&Ls created another financial disequilibrium—a higher demand for mortgages than the supply of available funds from the mortgage lending industry. Savings were accumulating in pension funds, insurance companies, and other institutions, not in S&Ls and banks, the traditional mortgage lenders.

This situation led to the development of "mortgage securitization," a process whereby banks, the remaining S&Ls, and specialized mortgage originating firms would originate mortgages and then sell them to investment banks, which would bundle them into packages and then use these packages as collateral for bonds that could be sold to

pension funds, insurance companies, and other institutional investors. Thus, individual loans were bundled and then used to back a bond—a “security”—that could be traded in the financial markets.

Congress facilitated this process by creating two stockholder-owned but government-sponsored entities, the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac). Fannie Mae and Freddie Mac were financed by issuing a relatively small amount of stock and a huge amount of debt.

To illustrate the securitization process, suppose an S&L or bank is paying its depositors 5% but is charging its borrowers 8% on their mortgages. The S&L can take hundreds of these mortgages, put them in a pool, and then sell the pool to Fannie Mae. The mortgagees can still make their payments to the original S&L, which will then forward the payments (less a small handling fee) to Fannie Mae.

Consider the S&L’s perspective. First, it can use the cash it receives from selling the mortgages to make additional loans to other aspiring homeowners. Second, the S&L is no longer exposed to the risk of owning mortgages. The risk hasn’t disappeared—it has been transferred from the S&L (and its federal deposit insurers) to Fannie Mae. This is clearly a better situation for aspiring homeowners and perhaps also for taxpayers.

Fannie Mae can take the mortgages it just bought, put them into a very large pool, and sell bonds backed by the pool to investors. The homeowner will pay the S&L, the S&L will forward the payment to Fannie Mae, and Fannie Mae will use the funds to pay interest on the bonds it issued, to pay dividends on its stock, and to buy additional mortgages from S&Ls, which can then make additional loans to aspiring homeowners. Notice that the mortgage risk has been shifted from Fannie Mae to the investors who now own the mortgage-backed bonds.

How does the situation look from the perspective of the investors who own the bonds? In theory, they own a share in a large pool of mortgages from all over the country, so a problem in a particular region’s real estate market or job market won’t affect the whole pool. Therefore, their expected rate of return should be very close to the 8% rate paid by the home-owning mortgagees. (It will be a little less due to handling fees charged by the S&L and Fannie Mae and to the small amount of expected losses from the homeowners who could be expected to default on their mortgages.) These investors could have deposited their money at an S&L and earned a virtually risk-free 5%. Instead, they chose to accept more risk in hopes of the higher 8% return. Note too that mortgage-backed bonds are more liquid than individual mortgage loans, so the securitization process increases liquidity, which is desirable. The bottom line is that risk has been reduced by the pooling process and then allocated to those who are willing to accept it in return for a higher rate of return.

Thus, in theory it is a win–win–win situation: More money is available for aspiring homeowners, S&Ls (and taxpayers) have less risk, and there are opportunities for investors who are willing to take on more risk to obtain higher potential returns. Although the securitization process began with mortgages, it is now being used with car loans, student loans, credit card debt, and other loans. The details vary for different assets, but the processes and benefits are similar to those with mortgage securitization: (1) increased supplies of lendable funds; (2) transfer of risk to those who are willing to bear it; and (3) increased liquidity for holders of the debt.

Mortgage securitization was a win–win situation in theory, but as practiced in the last decade it has turned into a lose–lose situation. We will have more to say about securitization and the global economic crisis later in this chapter, but first let’s take a look at the cost of money.

1.6 THE COST OF MONEY

In a free economy, capital from those with available funds is allocated through the price system to users who have a need for funds. The interaction of the providers' supply and the users' demand determines the cost (or price) of money, which is the rate users pay to providers. For debt, we call this price the **interest rate**. For equity, we call it the **cost of equity**, and it consists of the dividends and capital gains stockholders expect. Keep in mind that the "price" of money is a cost from a user's perspective but a return from the provider's point of view.

Notice in Table 1-1 that a financial instrument's rate of return generally increases as its maturity and risk increase. We will have much more to say about the relationships among an individual security's features, risk, and return later in the book, but there are some fundamental factors and economic conditions that affect all financial instruments.

Fundamental Factors That Affect the Cost of Money

The four most fundamental factors affecting the cost of money are **(1) production opportunities**, **(2) time preferences for consumption**, **(3) risk**, and **(4) inflation**. By production opportunities, we mean the ability to turn capital into benefits. If a business raises capital, the benefits are determined by the expected rates of return on its production opportunities. If a student borrows to finance his or her education, the benefits are higher expected future salaries (and, of course, the sheer joy of learning!). If a homeowner borrows, the benefits are the pleasure from living in his or her own home, plus any expected appreciation in the value of the home. Observe that the expected rates of return on these "production opportunities" put an upper limit on how much users can pay to providers.

Providers can use their current funds for consumption or saving. By saving, they give up consumption now in the expectation of having more consumption in the future. If providers have a strong preference for consumption now, then it takes high interest rates to induce them to trade current consumption for future consumption. Therefore, the time preference for consumption has a major impact on the cost of money. Notice that the time preference for consumption varies for different individuals, for different age groups, and for different cultures. For example, people in Japan have a lower time preference for consumption than those in the United States, which partially explains why Japanese families tend to save more than U.S. families even though interest rates are lower in Japan.

If the expected rate of return on an investment is risky, then providers require a higher expected return to induce them to take the extra risk, which drives up the cost of money. As you will see later in this book, the risk of a security is determined by market conditions and the security's particular features.

Inflation also leads to a higher cost of money. For example, suppose you earned 10% one year on your investment but inflation caused prices to increase by 20%. This means you can't consume as much at the end of the year as when you originally invested your money. Obviously, if you had expected 20% inflation, you would have required a higher rate of return than 10%.

Economic Conditions and Policies That Affect the Cost of Money

Economic conditions and policies also affect the cost of money. These include: (1) Federal Reserve policy; (2) the federal budget deficit or surplus; (3) the level of



The home page for the Board of Governors of the Federal Reserve System can be found at <http://www.federalreserve.gov>. You can access general information about the Federal Reserve, including press releases, speeches, and monetary policy.

business activity; and (4) international factors, including the foreign trade balance, the international business climate, and exchange rates.

Federal Reserve Policy. If the Federal Reserve Board wants to stimulate the economy, it most often uses open market operations to purchase Treasury securities held by banks. Because banks are selling some of their securities, the banks will have more cash, which increases their supply of loanable funds, which in turn makes banks willing to lend more money at lower interest rates. In addition, the Fed's purchases represent an increase in the demand for Treasury securities. As for anything that is for sale, increased demand causes Treasury securities' prices to go up and interest rates to go down (we explain the mathematical relationship between higher prices and lower interest rates in Chapter 4; for now, just trust us when we say that a security's price and its interest rate move in opposite directions). The net result is a reduction in interest rates, which stimulates the economy by making it less costly for companies to borrow for new projects or for individuals to borrow for major purchases or other expenditures.

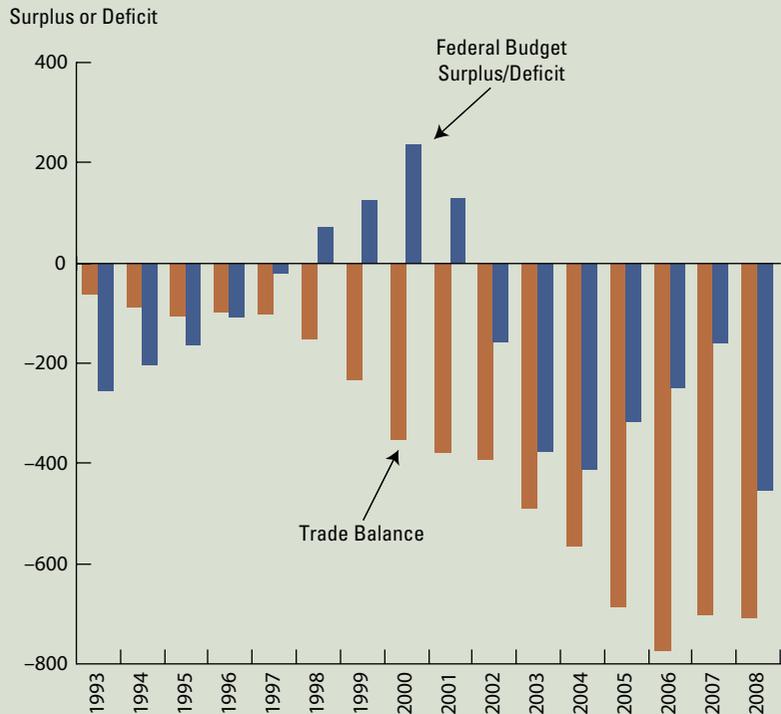
When banks sell their holdings of Treasury securities to the Fed, the banks' reserves go up, which increases the money supply. A larger money supply ultimately leads to an increase in expected inflation, which eventually pushes interest rates up. Thus, the Fed can stimulate the economy in the short term by driving down interest rates and increasing the money supply, but this creates longer-term inflationary pressures. This is exactly the dilemma facing the Fed in early 2009 as it attempts to stimulate the economy to prevent another great depression.

If the Fed wishes to slow down the economy and reduce inflation, the Fed reverses the process. Instead of purchasing Treasury securities, the Fed sells Treasury securities to banks, which causes an increase in short-term interest rates but a decrease in long-term inflationary pressures.

Budget Deficits or Surpluses. If the federal government spends more than it takes in from tax revenues then it's running a deficit, and that deficit must be covered either by borrowing or by printing money (increasing the money supply). The government borrows by issuing new Treasury securities. All else held equal, this creates a greater supply of Treasury securities, which leads to lower security prices and higher interest rates. Other federal government actions that increase the money supply also increase expectations for future inflation, which drives up interest rates. Thus, the larger the federal deficit, other things held constant, the higher the level of interest rates. As shown in Figure 1-2, the federal government has run large budget deficits for 12 of the past 16 years, and even larger deficits are predicted for at least several years into the future. These deficits contributed to the cumulative federal debt, which stood at over \$11 trillion at the beginning of 2009.

Business Activity. Figure 1-3 shows interest rates, inflation, and recessions. Notice that interest rates and inflation typically rise prior to a recession and fall afterward. There are several reasons for this pattern.

Consumer demand slows during a recession, keeping companies from increasing prices, which reduces price inflation. Companies also cut back on hiring, which reduces wage inflation. Less disposable income causes consumers to reduce their purchases of homes and automobiles, reducing consumer demand for loans. Companies reduce investments in new operations, which reduces their demand for funds. The cumulative effect is downward pressure on inflation and interest rates. The Federal Reserve is also active during recessions, trying to stimulate the economy by driving down interest rates.

FIGURE 1-2 Federal Budget Surplus/Deficits and Trade Balances (Billions of Dollars)**Notes:**

1. Years are for federal government fiscal years, which end on September 30.
2. Federal budget surplus/deficit data are from the Congressional Budget Office, <http://www.cbo.gov/>.
3. Data for international trade balances are from the St. Louis Federal Reserve Web site known as FRED: <http://research.stlouisfed.org/fred/>.

International Trade Deficits or Surpluses. Businesses and individuals in the United States buy from and sell to people and firms in other countries. If we buy more than we sell (that is, if we import more than we export), we are said to be running a *foreign trade deficit*. When trade deficits occur, they must be financed, and the main source of financing is debt. In other words, if we import \$200 billion of goods but export only \$90 billion, we run a trade deficit of \$110 billion, and we will probably borrow the \$110 billion.⁴ Therefore, the larger our trade deficit, the more we must borrow, and increased borrowing drives up interest rates. Also, international investors are willing to hold U.S. debt if and only if the risk-adjusted rate paid on this debt is competitive with interest rates in other countries. Therefore, if the Federal Reserve attempts to lower interest rates in the United States, causing our rates to fall below rates abroad (after adjustments for expected changes in the exchange rate), then international investors will sell U.S. bonds, which will depress bond prices and result in higher U.S. rates. Thus, if the trade deficit is large relative to the size of

⁴The deficit could also be financed by selling assets, including gold, corporate stocks, entire companies, and real estate. The United States has financed its massive trade deficits by all of these means in recent years, but the primary method has been by borrowing from foreigners.

FIGURE 1-3 Business Activity, Interest Rates, and Inflation**Notes:**

1. Tick marks represent January 1 of the year.
2. The shaded areas designate business recessions as defined by the National Bureau of Economic Research; see <http://www.nber.org/cycles>.
3. Interest rates are for AAA corporate bonds; see the St. Louis Federal Reserve Web site: <http://research.stlouisfed.org/fred/>. These rates reflect the average rate during the month ending on the date shown.
4. Inflation is measured by the annual rate of change for the Consumer Price Index (CPI) for the preceding 12 months; see <http://research.stlouisfed.org/fred/>.

the overall economy, it will hinder the Fed's ability to reduce interest rates and combat a recession.

The United States has been running annual trade deficits since the mid-1970s; see Figure 1-2 for recent years. The cumulative effect of trade deficits and budget deficits is that the United States has become the largest debtor nation of all time. As noted earlier, this federal debt has exceeded *\$11 trillion!* As a result, our interest rates are very much influenced by interest rates in other countries around the world.

International Country Risk. International risk factors may increase the cost of money that is invested abroad. **Country risk** is the risk that arises from investing or doing business in a particular country, and it depends on the country's economic, political, and social environment. Countries with stable economic, social, political, and regulatory systems provide a safer climate for investment and therefore have less country risk than less stable nations. Examples of country risk include the risk associated with changes in tax rates, regulations, currency conversion, and exchange rates. Country risk also includes the risk that (1) property will be expropriated without adequate compensation; (2) the host country will impose new stipulations concerning local production, sourcing, or hiring practices; and (3) there might be damage or destruction of facilities due to internal strife.

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Transparency International provides a ranking of countries based on their levels of perceived corruption. See http://www.transparency.org/policy_research/surveys_indices/cpi/2008. The U.S. Department of State provides thorough descriptions of countries' business climates at <http://www.state.gov/e/eeb/ifd/2008/>.

Exchange Rate Risk. International securities frequently are denominated in a currency other than the dollar, which means that the value of an investment depends on what happens to exchange rates. This is known as **exchange rate risk**. For example, if a U.S. investor purchases a Japanese bond, interest will probably be paid in Japanese yen, which must then be converted to dollars if the investor wants to spend his or her money in the United States. If the yen weakens relative to the dollar, then the yen will buy fewer dollars when it comes time for the investor to convert the Japanese bond's payout. Alternatively, if the yen strengthens relative to the dollar, the investor will earn higher dollar returns. It therefore follows that the effective rate of return on a foreign investment will depend on both the performance of the foreign security in its home market and on what happens to exchange rates over the life of the investment. We discuss exchange rates in detail in Chapter 17.

Self-Test

What four fundamental factors affect the cost of money?
Name some economic conditions that influence interest rates and explain their effects.

1.7 FINANCIAL INSTITUTIONS

When raising capital, direct transfers of funds from individuals to businesses are most common for small businesses or in economies where financial markets and institutions are not well developed. Businesses in developed economies usually find it more efficient to enlist the services of one or more financial institutions to raise capital. Most financial institutions don't compete in a single line of business but instead provide a wide variety of services and products, both domestically and globally. The following sections describe the major types of financial institutions and services, but keep in mind that the dividing lines among them are often blurred. Also, note that the global financial crisis we are now going through is changing the structure of our financial institutions, and new regulations are certain to affect those that remain. Finance today is dynamic, to say the least!

Investment Banks and Brokerage Activities

Investment banking houses help companies raise capital. Such organizations underwrite security offerings, which means they (1) advise corporations regarding the design and pricing of new securities, (2) buy these securities from the issuing corporation, and (3) resell them to investors. Although the securities are sold twice, this process is really one primary market transaction, with the investment banker acting as a facilitator to help transfer capital from savers to businesses. An investment bank often is a division or subsidiary of a larger company. For example, JPMorgan Chase & Co. is a very large financial services firm, with over \$2 *trillion* in managed assets. One of its holdings is J.P. Morgan, an investment banking house.

In addition to security offerings, investment banks also provide consulting and advisory services, such as merger and acquisition (M&A) analysis and investment management for wealthy individuals.

Most investment banks also provide brokerage services for institutions and individuals (called "retail" customers). For example, Merrill Lynch (acquired in 2008 by Bank of America) has a large retail brokerage operation that provides advice and executes trades for its individual clients. Similarly, J.P. Morgan helps execute trades for institutional customers, such as pension funds.

At one time, most investment banks were partnerships, with income generated primarily by fees from their underwriting, M&A consulting, asset management, and

brokering activities. When business was good, investment banks generated high fees and paid big bonuses to their partners. When times were tough, investment banks paid no bonuses and often fired employees. In the 1990s, however, most investment banks were reorganized into publicly traded corporations (or were acquired and then operated as subsidiaries of public companies). For example, in 1994 Lehman Brothers sold some of its own shares of stock to the public via an IPO. Like most corporations, Lehman Brothers was financed by a combination of equity and debt. A relaxation of regulations in the 2000s allowed investment banks to undertake much riskier activities than at any time since the Great Depression. Basically, the new regulations allowed investment banks to use an unprecedented amount of debt to finance their activities—Lehman used roughly \$30 of debt for every dollar of equity. In addition to their fee-generating activities, most investment banks also began trading securities for their own accounts. In other words, they took the borrowed money and invested it in financial securities. If you are earning 12% on your investments while paying 8% on your borrowings, then the more money you borrow, the more profit you make. But if you are leveraged 30 to 1 and your investments decline in value by even 3.33%, your business will fail. This is exactly what happened to Bear Stearns, Lehman Brothers, and Merrill Lynch in the fall of 2008. In short, they borrowed money, used it to make risky investments, and then failed when the investments turned out to be worth less than the amount they owed. Notice that it was not their traditional investment banking activities that caused the failure, but the fact that they borrowed so much and used those funds to speculate in the market.

Deposit-Taking Financial Intermediaries

Some financial institutions take deposits from savers and then lend most of the deposited money to borrowers. Following is a brief description of such intermediaries.

Savings and Loan Associations (S&Ls). As we explained in Section 1.5, S&Ls originally accepted deposits from many small savers and then loaned this money to home buyers and consumers. Later, they were allowed to make riskier investments, such as real estate development. **Mutual savings banks (MSBs)** are similar to S&Ls, but they operate primarily in the northeastern states. Today, most S&Ls and MSBs have been acquired by banks.

Credit Unions. **Credit unions** are cooperative associations whose members have a common bond, such as being employees of the same firm or living in the same geographic area. Members' savings are loaned only to other members, generally for auto purchases, home improvement loans, and home mortgages. Credit unions are often the cheapest source of funds available to individual borrowers.

Commercial Banks. **Commercial banks** raise funds from depositors and by issuing stock and bonds to investors. For example, someone might deposit money in a checking account. In return, that person can write checks, use a debit card, and even receive interest on the deposits. Those who buy the banks' stocks expect to receive dividends and interest payments. Unlike nonfinancial corporations, most commercial banks are highly leveraged in the sense that they owe much more to their depositors and creditors than they raised from stockholders. For example, a typical bank has about \$90 of debt for every \$10 of stockholders' equity. If the bank's assets are worth \$100, we can calculate its equity capital by subtracting the \$90 of liabilities from the \$100 of assets: $\text{Equity capital} = \$100 - \$90 = \10 . But if the assets drop in value by 5% to \$95, the equity drops to $\$5 = \$95 - \$90$, a 50% decline.

Banks are critically important to a well-functioning economy, and their high leverage makes them risky. As a result, banks are more highly regulated than nonfinancial firms. Given the high risk, banks might have a hard time attracting and retaining deposits unless the deposits were insured, so the Federal Deposit Insurance Corporation (FDIC), which is backed by the U.S. government, insures up to \$250,000 per depositor. As a result of the global economic crisis, this insured amount was increased from \$100,000 in 2008 to reassure depositors.

Without such insurance, if depositors believed that a bank was in trouble, they would rush to withdraw funds. This is called a “bank run,” which is exactly what happened in the United States during the Great Depression, causing many bank failures and leading to the creation of the FDIC in an effort to prevent future bank runs. Not all countries have their own versions of the FDIC, so international bank runs are still possible. In fact, a bank run occurred in September 2008 at the U.K. bank Northern Rock, leading to its nationalization by the government.

Most banks are small and locally owned, but the largest banks are parts of giant financial services firms. For example, JPMorgan Chase Bank, commonly called Chase Bank, is owned by JPMorgan Chase & Co., and Citibank is owned by Citicorp (at the time we write this, but perhaps not when you read this—the financial landscape is changing daily).

Investment Funds

At some financial institutions, savers have an ownership interest in a pool of funds rather than owning a deposit account. Examples include mutual funds, hedge funds, and private equity funds.

Mutual Funds. **Mutual funds** are corporations that accept money from savers and then use these funds to buy financial instruments. These organizations pool funds, which allows them to reduce risks by diversification and achieve economies of scale in analyzing securities, managing portfolios, and buying/selling securities. Different funds are designed to meet the objectives of different types of savers. Hence, there are bond funds for those who desire safety and stock funds for savers who are willing to accept risks in the hope of higher returns. There are literally thousands of different mutual funds with dozens of different goals and purposes. Some funds are actively managed, with their managers trying to find undervalued securities, while other funds are passively managed and simply try to minimize expenses by matching the returns on a particular market index.

Money market funds invest in short-term, low-risk securities, such as Treasury bills and commercial paper. Many of these funds offer interest-bearing checking accounts with rates that are greater than those offered by banks, so many people invest in mutual funds as an alternative to depositing money in a bank. Note, though, that money market funds are not required to be insured by the FDIC and so are riskier than bank deposits.

Most traditional mutual funds allow investors to redeem their share of the fund only at the close of business. A special type of mutual fund, the **exchange traded fund (ETF)**, allows investors to sell their share at any time during normal trading hours. ETFs usually have very low management expenses and are rapidly gaining in popularity.

Hedge Funds. **Hedge funds** raise money from investors and engage in a variety of investment activities. Unlike typical mutual funds, which can have thousands of investors, hedge funds are limited to institutional investors and a relatively small

number of high-net-worth individuals. Because these investors are supposed to be sophisticated, hedge funds are much less regulated than mutual funds. The first hedge funds literally tried to hedge their bets by forming portfolios of conventional securities and derivatives in such a way as to limit their potential losses without sacrificing too much of their potential gains. Recently, though, most hedge funds began to lever their positions by borrowing heavily. Many hedge funds had spectacular rates of return during the 1990s. This success attracted more investors, and thousands of new hedge funds were created. Much of the low-hanging fruit had already been picked, however, so the hedge funds began pursuing much riskier (and unhedged) strategies. Perhaps not surprisingly (at least in retrospect), some funds have produced spectacular losses. For example, many hedge fund investors suffered huge losses in 2007 and 2008 when large numbers of sub-prime mortgages defaulted.

Private Equity Funds. **Private equity funds** are similar to hedge funds in that they are limited to a relatively small number of large investors, but they differ in that they own stock (equity) in other companies and often control those companies, whereas hedge funds usually own many different types of securities. In contrast to a mutual fund, which might own a small percentage of a publicly traded company's stock, a private equity fund typically owns virtually all of a company's stock. Because the company's stock is not traded in the public markets, it is called "private equity." In fact, private equity funds often take a public company (or subsidiary) and turn it private, such as the 2007 privatization of Chrysler by Cerberus. The general partners who manage the private equity funds usually sit on the boards of the companies the funds owns and guide the firms' strategies with the goal of later selling them for a profit. For example, The Carlyle Group, Clayton Dubilier & Rice, and Merrill Lynch Global Private Equity bought Hertz from Ford on December 22, 2005, and then sold shares of Hertz in an IPO less than a year later.

Chapter 15 provides additional discussion of private equity funds, but it is important to note here that many private equity funds experienced high rates of return in the last decade, and those returns attracted enormous sums from investors. A few funds, most notably The Blackstone Group, actually went public themselves through an IPO. Just as with hedge funds, the performance of many private equity funds faltered. For example, shortly after its IPO in June 2007, Blackstone's stock price was over \$31 per share; by early 2009, it had fallen to about \$4.

Life Insurance Companies and Pension Funds

Life insurance companies take premiums, invest these funds in stocks, bonds, real estate, and mortgages, and then make payments to beneficiaries. Life insurance companies also offer a variety of tax-deferred savings plans designed to provide retirement benefits.

Traditional **pension funds** are retirement plans funded by corporations or government agencies. Pension funds invest primarily in bonds, stocks, mortgages, hedge funds, private equity, and real estate. Most companies now offer self-directed retirement plans, such as 401(k) plans, as an addition to or substitute for traditional pension plans. In traditional plans, the plan administrators determine how to invest the funds; in self-directed plans, all individual participants must decide how to invest their own funds. Many companies are switching from traditional plans to self-directed plans, partly because this shifts the risk from the company to the employee.

Regulation of Financial Institutions

With the notable exception of investment banks, hedge funds, and private equity funds, financial institutions have been heavily regulated to ensure their safety and thus protect investors and depositors. Historically, many of these regulations—which have included a prohibition on nationwide branch banking, restrictions on the types of assets the institutions could buy, ceilings on the interest rates they could pay, and limitations on the types of services they could provide—tended to impede the free flow of capital and thus hurt the efficiency of our capital markets. Recognizing this fact, policymakers took several steps from the 1970s to the 1990s to deregulate financial services companies. For example, the barriers that restricted banks from expanding nationwide were eliminated. Likewise, regulations that once forced a strict separation of commercial and investment banking were relaxed.

The result of the ongoing regulatory changes has been a blurring of the distinctions between the different types of institutions. Indeed, the trend in the United States was toward huge financial services corporations, which own banks, S&Ls, investment banking houses, insurance companies, pension plan operations, and mutual funds and which have branches across the country and around the world.

For example, Citigroup combined one of the world's largest commercial banks (Citibank), a huge insurance company (Travelers), and a major investment bank (Smith Barney), along with numerous other subsidiaries that operate throughout the world. This structure was similar to that of major institutions in Europe, Japan, and elsewhere around the globe. Among the world's largest world banking companies, only one (Citigroup) is based in the United States. While U.S. banks have grown dramatically as a result of recent mergers, they are still relatively small by global standards.

However, the global economic crisis is causing regulators and financial institutions to rethink the wisdom of conglomerate financial services corporations. For example, in late 2008 Merrill Lynch sold itself to Bank of America to avoid bankruptcy. That was supposed to strengthen BofA, but Merrill brought with it billions of “toxic” loans, and now BofA is in danger of bankruptcy. Then, in early 2009 Citigroup was reorganizing itself in preparation for spinning off several lines of business into separate companies, again with the bankruptcy gun pointed straight at its head. Thus, the two largest U.S. banks are in danger of failure, and their continued survival is due primarily to support from the U.S. government. Congress and the new Obama administration are currently (mid-2009) considering new regulations on a variety of financial institutions, and more bank failures are a certainty. As the crisis unfolds, it will be interesting to see how regulations and the structure of financial institutions evolve to reshape our financial infrastructure, both in the U.S. and around the globe.

Self-Test

What is the difference between a pure commercial bank and a pure investment bank?

List the major types of financial institutions, and briefly describe the original purpose of each.

What are some important differences between mutual funds and hedge funds? How are they similar?

1.8 FINANCIAL MARKETS

Financial markets bring together people and organizations needing money with those having surplus funds. There are many different financial markets in a developed economy. Each market deals with a somewhat different type of instrument, customer, or geographic location. Here are some ways to classify markets:

1. **Physical asset markets** (also called “tangible” or “real” asset markets) are those for such products as wheat, autos, real estate, computers, and machinery. **Financial asset markets**, on the other hand, deal with stocks, bonds, notes, mortgages, derivatives, and other **financial instruments**.
2. **Spot markets** and **futures markets** are markets where assets are being bought or sold for “on-the-spot” delivery (literally, within a few days) or for delivery at some future date, such as 6 months or a year into the future.
3. **Money markets** are the markets for short-term, highly liquid debt securities, while **capital markets** are the markets for corporate stocks and debt maturing more than a year in the future. The New York Stock Exchange is an example of a capital market. When describing debt markets, “short term” generally means less than 1 year, “intermediate term” means 1 to 5 years, and “long term” means more than 5 years.
4. **Mortgage markets** deal with loans on residential, agricultural, commercial, and industrial real estate, while **consumer credit markets** involve loans for autos, appliances, education, vacations, and so on.
5. **World, national, regional, and local markets** also exist. Thus, depending on an organization’s size and scope of operations, it may be able to borrow or lend all around the world, or it may be confined to a strictly local, even neighborhood, market.
6. **Primary markets** are the markets in which corporations raise new capital. If Microsoft were to sell a new issue of common stock to raise capital, this would be a primary market transaction. The corporation selling the newly created stock receives the proceeds from such a transaction. The **initial public offering (IPO) market** is a subset of the primary market. Here firms “go public” by offering shares to the public for the first time. Microsoft had its IPO in 1986. Previously, Bill Gates and other insiders owned all the shares. In many IPOs, the insiders sell some of their shares and the company sells newly created shares to raise additional capital. **Secondary markets** are markets in which existing, already outstanding securities are traded among investors. Thus, if you decided to buy 1,000 shares of AT&T stock, the purchase would occur in the secondary market. The New York Stock Exchange is a secondary market, since it deals in outstanding (as opposed to newly issued) stocks. Secondary markets also exist for bonds, mortgages, and other financial assets. The corporation whose securities are being traded is not involved in a secondary market transaction and, thus, does not receive any funds from such a sale.
7. **Private markets**, where transactions are worked out directly between two parties, are differentiated from **public markets**, where standardized contracts are traded on organized exchanges. Bank loans and private placements of debt with insurance companies are examples of private market transactions. Since these transactions are private, they may be structured in any manner that appeals to the two parties. By contrast, securities that are issued in public markets (for example, common stock and corporate bonds) are ultimately held by a large number of individuals. Public securities must have fairly standardized contractual features because public investors cannot afford the time to study unique, nonstandardized contracts. Hence private market securities are more tailor-made but less liquid, whereas public market securities are more liquid but subject to greater standardization.

The distinctions among markets are often blurred. For example, it makes little difference if a firm borrows for 11, 12, or 13 months and thus whether such borrowing

is a “money” or “capital” market transaction. You should recognize the big differences among types of markets, but don’t get hung up trying to distinguish them at the boundaries.

Self-Test

Distinguish between (1) physical asset markets and financial asset markets, (2) spot and futures markets, (3) money and capital markets, (4) primary and secondary markets, and (5) private and public markets.

1.9 TRADING PROCEDURES IN FINANCIAL MARKETS

A huge volume of trading occurs in the secondary markets. Although there are many secondary markets for a wide variety of securities, we can classify their trading procedures along two dimensions: location and method of matching orders.

Physical Location versus Electronic Network

A secondary market can be either a **physical location exchange** or a **computer/telephone network**. For example, the New York Stock Exchange, the American Stock Exchange (AMEX), the Chicago Board of Trade (the CBOT trades futures and options), and the Tokyo Stock Exchange are all physical location exchanges. In other words, the traders actually meet and trade in a specific part of a specific building.

In contrast, Nasdaq, which trades a number of U.S. stocks, is a network of linked computers. Other network examples are the markets for U.S. Treasury bonds and foreign exchange, which are conducted via telephone and/or computer networks. In these electronic markets, the traders never see one another except maybe for cocktails after work.

By their very nature, networks are less transparent than physical location exchanges. For example, credit default swaps are traded directly between buyers and sellers, and there is no easy mechanism for recording, aggregating, and reporting the transactions or the net positions of the buyers and sellers.

Matching Orders: Auctions, Dealers, and ECNs

The second dimension is the way orders from sellers and buyers are matched. This can occur through an open outcry **auction** system, through dealers, or by automated order matching. An example of an outcry auction is the CBOT, where traders actually meet in a pit and sellers and buyers communicate with one another through shouts and hand signals.

In a **dealer market**, there are “market makers” who keep an inventory of the stock (or other financial instrument) in much the same way that any merchant keeps an inventory. These dealers list bid and ask quotes, which are the prices at which they are willing to buy or sell. Computerized quotation systems keep track of all bid and asked prices, but they don’t actually match buyers and sellers. Instead, traders must contact a specific dealer to complete the transaction. Nasdaq (U.S. stocks) is one such market, as are the London SEAQ (U.K. stocks) and the Neuer Market (stocks of small German companies).

The third method of matching orders is through an **electronic communications network (ECN)**. Participants in an ECN post their orders to buy and sell, and the ECN automatically matches orders. For example, someone might place an order to buy 1,000 shares of IBM stock—this is called a “market order” since it is to buy the stock at the current market price. Suppose another participant had placed an order to sell 1,000 shares of IBM, but only at a price of \$91 per share, and this was the lowest

price of any “sell” order. The ECN would automatically match these two orders, execute the trade, and notify both participants that the trade has occurred. The \$91 sell price was a “limit order” as opposed to a market order because the action was limited by the seller. Note that orders can also be limited with regard to their duration. For example, someone might stipulate that they are willing to buy 1,000 shares of IBM at \$90 per share if the price falls that low during the next two hours. In other words, there are limits on the price and/or the duration of the order. The ECN will execute the limit order only if both conditions are met. Two of the largest ECNs for trading U.S. stocks are Instinet (now owned by Nasdaq) and Archipelago (now owned by the NYSE). Other large ECNs include Eurex, a Swiss–German ECN that trades futures contracts, and SETS, a U.K. ECN that trades stocks.

Self-Test

What are the major differences between physical location exchanges and computer/telephone networks?

What are the differences among open outcry auctions, dealer markets, and ECNs?

1.10 TYPES OF STOCK MARKET TRANSACTIONS

Because the primary objectives of financial management are to maximize the firm’s intrinsic value and then help ensure that the current stock price equals that value, knowledge of the stock market is important to anyone involved in managing a business. We can classify stock market transactions into three distinct types: (1) initial public offerings, (2) seasoned equity offerings, and (3) secondary market transactions.

Whenever stock is offered to the public for the first time, the company is said to be **going public**. This primary market transaction is called the initial public offering (IPO) market. If a company later decides to sell (i.e., issue) additional shares to raise new equity capital, this is still a primary market, but it is called a **seasoned equity offering**. Trading in the outstanding shares of established, publicly owned companies are secondary market transactions. For example, if the owner of 100 shares of publicly held stock sells his or her stock, the trade is said to have occurred in the secondary market. Thus, the market for outstanding shares, or used shares, is the secondary market. The company receives no new money when sales occur in this market.

Here is a brief description of recent IPO activity. The 662 total global IPOs in 2008 was a huge decline from the 1,711 in 2007. Proceeds also plummeted, to \$77 billion from \$279 billion. The Americas raised more money than any other region in the world, with the United States having 33 IPOs that raised a total of \$26.4 billion. Visa’s IPO was the largest in the world, bringing in over \$19 billion.

In the United States, the average first-day return was around 5.3% in 2008. However, some firms had spectacular first-day price run-ups, such as Intrepid Potash’s 57% gain on its first day of trading and Grand Canyon Education’s 59.7% gain for the year. However, not all companies fared so well—indeed, Intrepid Potash fell 30% for the year, despite its great first-day return. Some lost even more, including GT Solar International, which lost 11.6% on its first day and a total of 82.5% for the year.

Even if you are able to identify a “hot” issue, it is often difficult to purchase shares in the initial offering. In strong markets, these deals are generally oversubscribed, which means that the demand for shares at the offering price exceeds the number of shares issued. In such instances, investment bankers favor large institutional investors (who are their best customers), and small investors find it hard, if not impossible, to get in on the ground floor. They can buy the stock in the aftermarket, but evidence



Rational Exuberance?

The Daily Planet Ltd. made history on May 1, 2003, by becoming the world's first publicly traded brothel. Technically, the Daily Planet owns only property, including a hotel with 18 rooms, each with a different theme, but all have multi-person showers and very large beds. The Daily Planet charges guests a room fee of 115 Australian dollars (A\$) per hour; clients also pay a fee of A\$115 directly to individual members of the staff.

The IPO was for 7.5 million shares of stock, initially priced at A\$0.50. However, the price ended the first day

of trading at A\$1.09 for a first-day return of 118%. The price closed the second day at A\$1.56 for a two-day return of 212%, one of the largest returns since the days of the dot-com boom. Institutional investors normally buy about 60% to 70% of the stock in an IPO, but they didn't participate in this offering.

The company is named after the fictitious newspaper for which comic strip character Clark Kent was a reporter. All receptionists have "Lois Lane" nametags, and there is a telephone booth in the lobby. What would Superman think!

suggests that if you do not get in on the ground floor, the average IPO underperforms the overall market over the long run.⁵

Before you conclude that it isn't fair to let only the best customers have the stock in an initial offering, think about what it takes to become a best customer. Best customers are usually investors who have done lots of business in the past with the investment banking firm's brokerage department. In other words, they have paid large sums as commissions in the past, and they are expected to continue doing so in the future. As is so often true, there is no free lunch—most of the investors who get in on the ground floor of an IPO have, in fact, paid for this privilege.

Self-Test

Differentiate between an IPO, a seasoned equity offering, and a secondary transaction.

Why is it often difficult for the average investor to make money during an IPO?

1.11 THE SECONDARY STOCK MARKETS

The two leading U.S. stock markets today are the New York Stock Exchange and the Nasdaq stock market.

The New York Stock Exchange

Before March of 2006, the **New York Stock Exchange (NYSE)** was a privately held firm owned by its members. It then merged with Archipelago, a publicly traded company that was one of the world's largest ECNs. NYSE members received approximately 70% of the shares in the combined firm, with Archipelago shareholders receiving 30%. The combined firm, which also owned the Pacific Exchange, was known as The NYSE Group, Inc., and was traded publicly under the ticker symbol NYX. It continued to operate the New York Stock Exchange (a physical location exchange located on Wall Street) and Arca (comprising the Pacific Exchange and the ECN formerly known as Archipelago). In 2007 The NYSE Group merged with Euronext, a European company that operates stock exchanges (called bourses) in Paris, Amsterdam, Brussels, and Lisbon. The combined company is called NYSE Euronext.

WWW

You can access the home pages of the major U.S. stock markets at <http://www.nyse.com> or <http://www.nasdaq.com>. These sites provide background information as well as the opportunity to obtain individual stock quotes.

⁵See Jay R. Ritter, "The Long-Run Performance of Initial Public Offerings," *Journal of Finance*, March 1991, pp. 3–27.



The NYSE still has over 300 member organizations, which are corporations, partnerships, or LLCs. Membership prices were as high as \$4 million in 2005, and the last sale before the Euronext merger was \$3.5 million. Member organizations are registered broker-dealers, but they may not conduct trading on the floor of the exchange unless they also hold a trading license issued by the NYSE. Before going public, the equivalent to the trading license was called a “seat,” although there was very little sitting on the floor of the exchange. Trading licenses are now leased by member organizations from the exchange, with an annual fee of \$40,000 for 2009. The NYSE has leased most of its 1,500 available trading licenses.

Most of the larger investment banking houses operate *brokerage departments* and are members of the NYSE with leased trading rights. The NYSE is open on all normal working days, and members meet in large rooms equipped with electronic equipment that enables each member to communicate with his or her firm’s offices throughout the country. For example, Merrill Lynch (now owned by Bank of America) might receive an order in its Atlanta office from a customer who wants to buy shares of Procter & Gamble stock. Simultaneously, Edward Jones’ St. Louis office might receive an order from a customer wishing to sell shares of P&G. Each broker communicates electronically with the firm’s representative on the NYSE. Other brokers throughout the country also communicate with their own exchange members. The exchange members with *sell orders* offer the shares for sale, and they are bid for by the members with *buy orders*. Thus, the NYSE operates as an *auction market*.⁶

The Nasdaq Stock Market

The **National Association of Securities Dealers (NASD)** is a self-regulatory body that licenses brokers and oversees trading practices. The computerized network used by the NASD is known as the NASD Automated Quotation System, or Nasdaq. Nasdaq started as just a quotation system, but it has grown to become an organized securities market with its own listing requirements. Nasdaq lists about 5,000 stocks, although not all trade through the same Nasdaq system. For example, the Nasdaq National Market lists the larger Nasdaq stocks, such as Microsoft and Intel, while the Nasdaq SmallCap Market lists smaller companies with the potential for high growth. Nasdaq also operates the Nasdaq OTC Bulletin Board, which lists quotes

⁶The NYSE is actually a modified auction market, wherein people (through their brokers) bid for stocks. Originally—about 200 years ago—brokers would literally shout, “I have 100 shares of Erie for sale; how much am I offered?” and then sell to the highest bidder. If a broker had a buy order, he or she would shout, “I want to buy 100 shares of Erie; who’ll sell at the best price?” The same general situation still exists, although the exchanges now have members known as *specialists* who facilitate the trading process by keeping an inventory of shares of the stocks in which they specialize. If a buy order comes in at a time when no sell order arrives, the specialist will sell off some inventory. Similarly, if a sell order comes in, the specialist will buy and add to inventory. The specialist sets a *bid price* (the price the specialist will pay for the stock) and an *asked price* (the price at which shares will be sold out of inventory). The bid and asked prices are set at levels designed to keep the inventory in balance. If many buy orders start coming in because of favorable developments or sell orders come in because of unfavorable events, the specialist will raise or lower prices to keep supply and demand in balance. Bid prices are somewhat lower than asked prices, with the difference, or *spread*, representing the specialist’s profit margin.

Special facilities are available to help institutional investors such as mutual funds or pension funds sell large blocks of stock without depressing their prices. In essence, brokerage houses that cater to institutional clients will purchase blocks (defined as 10,000 or more shares) and then resell the stock to other institutions or individuals. Also, when a firm has a major announcement that is likely to cause its stock price to change sharply, it will ask the exchanges to halt trading in its stock until the announcement has been made and digested by investors. See *Web Extension 1B* on the textbook’s Web site for more on specialists and trading off the exchange floor.

Measuring the Market

A *stock index* is designed to show the performance of the stock market. Here we describe some leading indexes.

Dow Jones Industrial Average

Begun in 1896, the Dow Jones Industrial Average (DJIA) now includes 30 widely held stocks that represent almost a fifth of the market value of all U.S. stocks. See <http://www.dowjones.com> for more information.

S&P 500 Index

Created in 1926, the S&P 500 Index is widely regarded as the standard for measuring large-cap U.S. stocks' market performance. It is value weighted, so the largest companies (in terms of value) have the greatest influence. The S&P 500 Index is used as a comparison benchmark by 97% of all U.S. money managers and pension plan sponsors. See <http://www2.standardandpoors.com> for more information.

Nasdaq Composite Index

The Nasdaq Composite Index measures the performance of all common stocks listed on the Nasdaq stock market. Currently, it includes more than 3,200 companies, many of which are in the technology sector. Microsoft, Cisco Systems, and Intel account for a high percentage of the index's value-weighted market capitalization. For this reason, substantial movements in the same direction by these three companies can move the entire index. See <http://www.nasdaq.com> for more information.

NYSE Composite Index

The NYSE Composite Index measures the performance of all common stocks listed on the NYSE. It is a

value-weighted index based on just over 2,000 stocks that represent 77% of the total market capitalization of all publicly traded companies in the United States. See <http://www.nyse.com> for more information.

Trading the Market

Through the use of exchange traded funds (ETFs), it is now possible to buy and sell the market in much the same way as an individual stock. For example, the Standard & Poor's depository receipt (SPDR) is a share of a fund that holds the stocks of all the companies in the S&P 500. SPDRs trade during regular market hours, making it possible to buy or sell the S&P 500 any time during the day. There are hundreds of other ETFs, including ones for the Nasdaq, the Dow Jones Industrial Average, gold stocks, utilities, and so on.

Recent Performance

Go to the Web site <http://finance.yahoo.com/>. Enter the symbol for any of the indexes (^DJI for the Dow Jones, ^SPC for the S&P 500, ^IXIC for the Nasdaq, and ^NYA for the NYSE) and then click GO. This will bring up the current value of the index, shown in a table. Click Basic Chart in the panel on the left, which will bring up a chart showing the historical performance of the index. Directly above the chart is a series of buttons that allows you to choose the number of years and to plot the relative performance of several indexes on the same chart. You can even download the historical data in spreadsheet form by clicking Historical Prices in the left panel.

for stocks that are registered with the Securities and Exchange Commission (SEC) but are not listed on any exchange, usually because the company is too small or not sufficiently profitable.⁷ Finally, Nasdaq operates the Pink Sheets, which provide quotes on companies that are not registered with the SEC.

⁷OTC stands for over-the-counter. Before Nasdaq, the quickest way to trade a stock that was not listed at a physical location exchange was to find a brokerage firm that kept shares of that stock in inventory. The stock certificates were actually kept in a safe and were literally passed over the counter when bought or sold. Nowadays the certificates for almost all listed stocks and bonds in the United States are stored in a vault, beneath Manhattan, that is operated by the Depository Trust and Clearing Corporation (DTCC). Most brokerage firms have an account with the DTCC, and most investors leave their stocks with their brokers. Thus, when stocks are sold, the DTCC simply adjusts the accounts of the brokerage firms that are involved, and no stock certificates are actually moved.

"Liquidity" is the ability to trade quickly at a net price (i.e., after any commissions) that is close to the security's recent market price. In a dealer market, such as Nasdaq, a stock's liquidity depends on the number and quality of the dealers who make a market in the stock. Nasdaq has more than 400 dealers, most of whom make markets in a large number of stocks. The typical stock has about 10 market makers, but some stocks have more than 50 market makers. Obviously, there are more market makers, and hence there is more liquidity, for the Nasdaq National Market than for the SmallCap Market. Stocks listed on the OTC Bulletin Board or the Pink Sheets have much less liquidity.

Competition in the Secondary Markets

There is intense competition between the NYSE, Nasdaq, and other international stock exchanges—they all want the larger, more profitable companies to list on their exchange. Since most of the largest U.S. companies trade on the NYSE, the market capitalization of NYSE-traded stocks is much higher than for stocks traded on Nasdaq (about \$15.7 trillion compared with \$4.0 trillion at the end of 2007). However, reported volume (number of shares traded) is often larger on Nasdaq, and more companies are listed on Nasdaq.⁸ For comparison, the market capitalizations for global exchanges are \$4.3 trillion in Tokyo, \$3.9 trillion in London, \$3.7 trillion in Shanghai, \$2.7 trillion in Hong Kong, \$2.1 trillion in Germany, and \$1.8 trillion in Bombay.

Interestingly, many high-tech companies such as Microsoft and Intel have remained on Nasdaq even though they easily meet the listing requirements of the NYSE. At the same time, however, other high-tech companies such as Gateway and Iomega have left Nasdaq for the NYSE. Despite these defections, Nasdaq's growth over the past decade has been impressive. In an effort to become even more competitive with the NYSE and with international markets, Nasdaq acquired one of the leading ECNs, Instinet, in 2005. Moreover, in early 2006 Nasdaq made an offer to acquire the London Stock Exchange (LSE), was rejected by the LSE, withdrew the offer but retained the right to make a subsequent offer, and busily acquired additional shares of stock in the LSE. In late 2006, Nasdaq made a second offer for the LSE and again was rejected. Nasdaq ultimately ended up by selling most of its LSE shares to Bourse Dubai, which owns about 28% of the LSE. Nasdaq did acquire the Nordic exchange OMX, giving it an international presence. The combined company is now known as the NASDAQ OMX Group.

Despite all the shifting ownerships of exchanges, one thing is clear—there will be a continued consolidation in the securities exchange industry, with a blurring of the lines between physical location exchanges and electronic exchanges.

Self-Test

What are some major differences between the NYSE and the Nasdaq stock market?

1.12 STOCK MARKET RETURNS

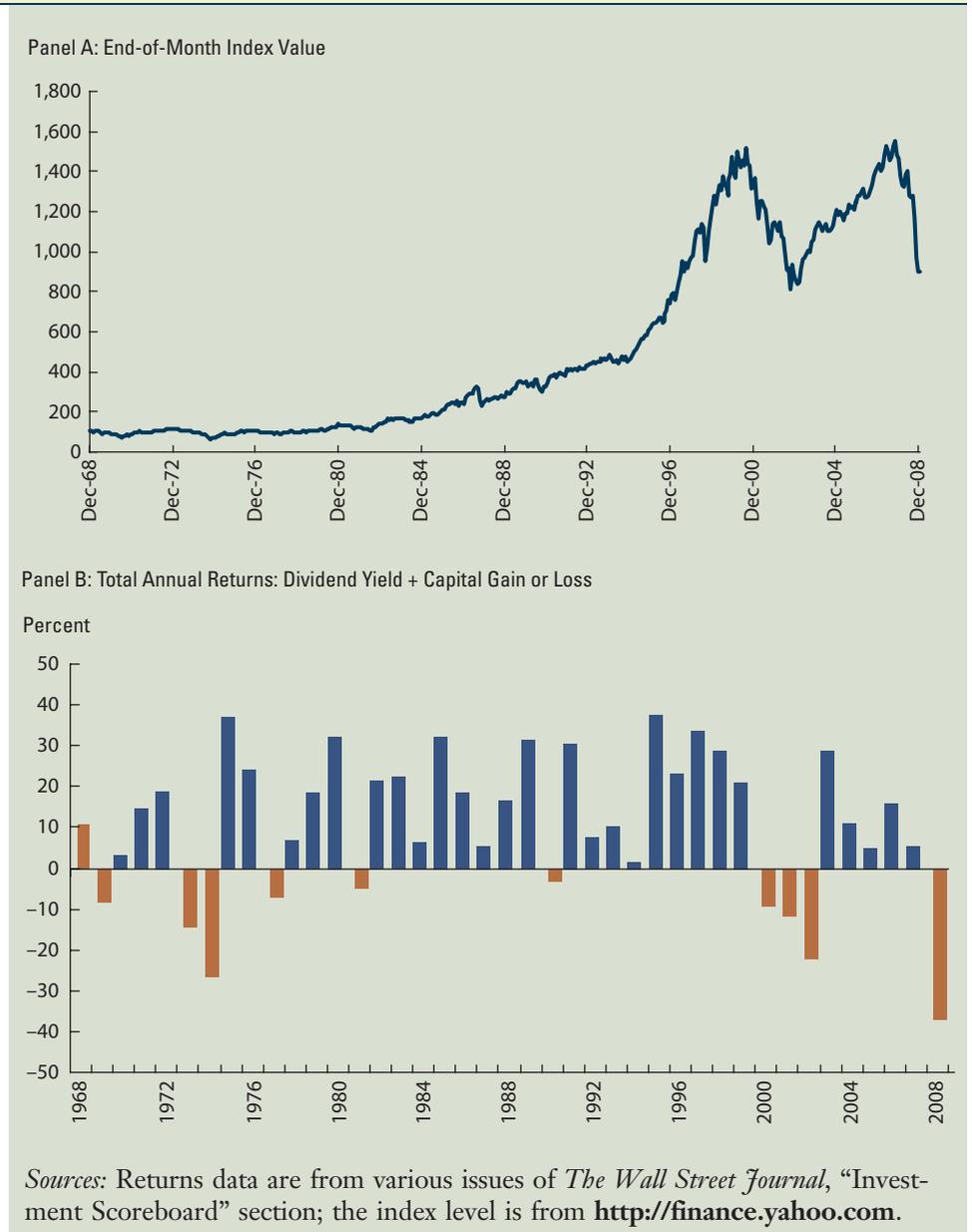
During the period 1968–2008, the average annual return for the stock market, as measured by total returns (dividends plus capital gains) on the S&P 500 index, was about 10.6%, but this average does not reflect the considerable annual variation. Notice in Panel A of Figure 1-4 that the market was relatively flat in the 1970s, increased somewhat in the 1980s, and has been a roller coaster ever since. In fact, the market in early 2009 dipped to a level last seen in 1995. Panel B highlights the

⁸One transaction on Nasdaq generally shows up as two separate trades (the buy and the sell). This "double counting" makes it difficult to compare the volume between stock markets.

WWW

For updates, see <http://www.world-exchanges.org/statistics/time-series/market-capitalization> at the World Federation of Exchanges.

FIGURE 1-4 S&P 500 Stock Index Performance



year-to-year risk by showing annual returns. Notice that stocks have had positive returns in most years, but there have been several years with large losses. Stocks lost more than 40% of their value during 1973–1974 and again during 2000–2002, and they lost 37% of their value in 2008 alone. We will examine risk in more detail later in the book, but even a cursory glance at Figure 1-4 shows just how risky stocks can be!

U.S. stocks amount to only about 40% of the world’s stocks, and this is prompting many U.S. investors to also hold foreign stocks. Analysts have long touted the benefits of investing overseas, arguing that foreign stocks improve diversification and provide good growth opportunities. This has been true for many years, but it wasn’t the

TABLE 1-2

2008 Performance of Selected Dow Jones Global Stock Indexes, Ranked Highest to Lowest

COUNTRY	U.S. DOLLARS	LOCAL CURRENCY	COUNTRY	U.S. DOLLARS	LOCAL CURRENCY
Morocco	-17.5%	-14.1%	Singapore	-53.1%	-53.0%
Japan	-29.3	-42.6	Sweden	-53.2	-42.7
Switzerland	-31.0	-35.0	China	-53.3	-53.6
Colombia	-31.4	-23.5	Hong Kong	-53.9	-54.2
Israel	-36.2	-37.4	Australia	-54.5	-42.7
United States	-38.6	-38.6	South Korea	-55.6	-40.3
Mexico	-39.8	-23.6	Argentina	-56.1	-51.9
South Africa	-42.8	-22.6	Brazil	-57.0	-43.7
Spain	-43.4	-40.5	Egypt	-57.2	-57.3
France	-45.5	-42.6	Indonesia	-63.0	-57.1
Germany	-46.3	-43.5	India	-66.7	-58.9
Taiwan	-47.6	-46.9	Ireland	-68.7	-67.1
Canada	-49.1	-36.3	Russia	-73.1	-66.6
U.K.	-51.2	-32.5	Cyprus	-79.0	-77.9
Italy	-52.5	-50.0	Iceland	-96.2	-92.6

Source: Adapted from *The Wall Street Journal Online*, <http://online.wsj.com>.

case in 2008 and 2009. Table 1-2 shows returns in selected countries. Notice that all the countries had negative returns. The table shows how each country's stocks performed in its local currency and in terms of the U.S. dollar. For example, in 2008 British (U.K.) stocks had a -32.5% return in their own currency, but that translated into a -51.2% return to a U.S. investor; the difference was due to depreciation in the British pound relative to the U.S. dollar. As this example shows, the results of foreign investments depend in part on what happens in the foreign economy and in part on movements in exchange rates. Indeed, when you invest overseas, you face two risks: (1) that foreign stocks will decrease in their local markets and (2) that the currencies in which you will be paid will fall relative to the dollar.

Even though foreign stocks have exchange rate risk, this by no means suggests that investors should avoid them. Foreign investments do improve diversification, and it is inevitable that there will be years when foreign stocks outperform U.S. domestic stocks. When this occurs, U.S. investors will be glad they put some of their money in overseas markets.

Self-Test

Explain how exchange rates affect the rate of return on international investments.

1.13 THE GLOBAL ECONOMIC CRISIS

Although the global economic crisis has many causes, mortgage securitization in the 2000s is certainly one culprit, so we begin with it.

The Globalization of Mortgage Market Securitization

A national TV program ran a documentary on the travails of Norwegian retirees resulting from defaults on Florida mortgages. Your first reaction might be to wonder how Norwegian retirees became financially involved with risky Florida mortgages.

We will break the answer to that question into two parts. First, we will identify the different links in the financial chain between the retirees and mortgagees. Second, we will explain why there were so many weak links.

In the movie *Jerry Maguire*, Tom Cruise said “Show me the money!” That’s a good way to start identifying the financial links, starting with a single home purchase in Florida.

1. Home Purchase. In exchange for cash, a seller in Florida turned over ownership of a house to a buyer.

2. Mortgage Origination. To get the cash used to purchase the house, the home buyer signed a mortgage loan agreement and gave it to an “originator.” Years ago the originator would probably have been an S&L or a bank, but more recently the originators have been specialized mortgage brokers, which was true in this case. The broker gathered and examined the borrower’s credit information, arranged for an independent appraisal of the house’s value, handled the paperwork, and received a fee for these services.

3. Securitization and Resecuritization. In exchange for cash, the originator sold the mortgage to a securitizing firm. For example, Merrill Lynch’s investment banking operation was a major player in securitizing loans. It would bundle large numbers of mortgages into pools and then create new securities that had claims on the pools’ cash flows. Some claims were simple, such as a proportional share of a pool, and some claims were more complex, such as a claim on all interest payments during the first five years or a claim on only principal payments. More complicated claims were entitled to a fixed payment, while other claims would receive payments only after the “senior” claimants had been paid. These slices of the pool were called “tranches,” which comes from a French word for slice.

Some of the tranches were themselves re-combined and then re-divided into securities called “collateralized debt obligations (CDOs)”, some of which were themselves combined and subdivided into other securities, commonly called CDOs-squared. For example, Lehman Brothers often bought different tranches, split them into CDOs of differing risk, and then had the different CDOs rated by an agency like Moody’s or Standard & Poor’s.

There are two very important points to notice. First, the process didn’t change the *total amount of risk* embedded in the mortgages, but it did make it possible to create some securities that were less risky than average and some that were more risky. Second, each time a new security was created or rated, fees were being earned by the investment banks and rating agencies.

4. The Investors. In exchange for cash, the securitizing firms sold the newly created securities to individual investors, hedge funds, college endowments, insurance companies, and other financial institutions, including a pension fund in Norway. Keep in mind that financial institutions are themselves funded by individuals, so cash begins with individuals and flows through the system until it is eventually received by the seller of the home. If all goes according to plan, payments on the mortgages eventually return to the individuals who originally provided the cash. But in this case, the chain was broken by a wave of mortgage defaults, resulting in problems for Norwegian retirees.

Students and managers often ask us, “What happened to all the money?” The short answer is “It went from investors to home sellers, with fees being skimmed off all along the way.”

Although the process is complex, in theory there is nothing inherently wrong with it. In fact, it should, in theory, provide more funding for U.S. home purchasers, and it should allow risk to be shifted to those best able to bear it. Unfortunately, this isn't the end of the story.

The Dark Side of Securitization: The Sub-Prime Mortgage Meltdown

What caused the financial crisis? Entire books are now being written on this subject, but we can identify a few of the culprits.

Regulators Approved Sub-Prime Standards. In the 1980s and early 1990s, regulations did not permit a nonqualifying mortgage to be securitized, so most originators mandated that borrowers meet certain requirements, including having at least a certain minimum level of income relative to the mortgage payments and a minimum down payment relative to the size of the mortgage. But in the mid-1990s, Washington politicians wanted to extend home ownership to groups that traditionally had difficulty obtaining mortgages. To accomplish this, regulations were relaxed so that nonqualifying mortgages could be securitized. Such loans are commonly called sub-prime or Alt-A mortgages. Thus, riskier mortgages were soon being securitized and sold to investors. Again, there was nothing inherently wrong, provided the two following questions were being answered in the affirmative: One, were home buyers making sound decisions regarding their ability to repay the loans? And two, did the ultimate investors recognize the additional risk? We now know that the answer to both questions is a resounding “no.” Homeowners were signing mortgages that they could not hope to repay, and investors treated these mortgages as if they were much safer than they actually were.

The Fed Helped Fuel the Real Estate Bubble. With more people able to get a mortgage, including people who should not have obtained one, the demand for homes increased. This alone would have driven up house prices. However, the Fed also slashed interest rates to historic lows after 9/11 to prevent a recession, and it kept them low for a long time. These low rates made mortgage payments lower, which made home ownership seem even more affordable, again contributing to an increase in the demand for housing. Figure 1-5 shows that the combination of lower mortgage qualifications and lower interest rates caused house prices to skyrocket. Thus, the Fed contributed to an artificial bubble in real estate.

Home Buyers Wanted More for Less. Even with low interest rates, how could sub-prime borrowers afford the mortgage payments, especially with house prices rising? First, most sub-prime borrowers chose an adjustable rate mortgage (ARM) with an interest rate based on a short-term rate, such as that on 1-year Treasury bonds, to which the lender added a couple of percentage points. Because the Fed had pushed short-term rates so low, the initial rates on ARMs were very low.

With a traditional fixed-rate mortgage, the payments remain fixed over time. But with an ARM, an increase in market interest rates triggers higher monthly payments, so an ARM is riskier than a fixed-rate mortgage. However, many borrowers chose an *even riskier* mortgage, the “option ARM,” where the borrower can choose to make such low payments during the first couple of years that they don't even cover the interest, causing the loan balance to actually increase each month! At a later date, the payments would be reset to reflect both the current market interest rate and the higher loan balance. For example, in some cases a monthly payment of \$948 for the first

FIGURE 1-5 The Real Estate Boom: Housing Prices and Mortgage Rates**Notes:**

1. The real estate index is the Case-Shiller composite index for house prices in 10 real estate markets, available at http://www2.standardandpoors.com/spf/pdf/index/CSHomePrice_History_012724.xls.
2. Interest rates are for 30-year conventional fixed rate mortgages, available from the St. Louis Federal Reserve: <http://research.stlouisfed.org/fred/>.

32 months was reset to \$2,454 for the remaining 328 months (we provide the calculations for this example in Chapter 4).

Why would anyone who couldn't afford to make a \$2,454 monthly payment choose an option ARM? Here are three possible reasons. First, some borrowers simply didn't understand the situation and were victims of predatory lending practices by brokers eager to earn fees regardless of the consequences. Second, some borrowers thought that the home price would go up enough to allow them to sell at a profit or else refinance with another low-payment loan. Third, some people were simply greedy and shortsighted, and they wanted to live in a better home than they could afford.

Mortgage Brokers Didn't Care. Years ago, S&Ls and banks had a vested interest in the mortgages they originated because they held them for the life of the loan—up to 30 years. If a mortgage went bad, the bank or S&L would lose money, so they were careful to verify that the borrower would be able to repay the loan. In the bubble years, though, over 80% of mortgages were arranged by independent mortgage brokers who received a commission. Thus, the broker's incentive was to complete deals even if the borrowers couldn't make the payments after the soon-to-come reset. So it's easy to understand (but not to approve!) why brokers pushed deals onto borrowers who were almost certain to default eventually.

Real Estate Appraisers Were Lax. The relaxed regulations didn't require the mortgage broker to verify the borrower's income, so these loans were called “liar

loans” because the borrowers could overstate their income. But even in these cases the broker had to get an appraisal showing that the house’s value was greater than the loan amount. Many real estate appraisers simply assumed that house prices would keep going up, so they were willing to appraise houses at unrealistically high values. Like the mortgage brokers, they were paid at the time of their service. Other than damage to their reputations, they weren’t concerned if the borrower later defaulted and the value of the house turned out to be less than the remaining loan balance, causing a loss for the lender.

Originators and Securitizers Wanted Quantity, not Quality. Originating institutions like Countrywide Financial and New Century Mortgage made money when they sold the mortgages, long before any of the mortgages defaulted. The same is true for securitizing firms such as Bear Stearns, Merrill Lynch, and Lehman Brothers. Their incentives were to generate volume originating loans, not to make sure the loans should have been made. This started at the top—CEOs and other top executives received stock options and bonuses based on their firms’ profits, and profits depended on volume. Thus, the top officers pushed their subordinates to generate volume, those subordinates pushed the originators to write more mortgages, and the originators pushed the appraisers to come up with high values.

Rating Agencies Were Lax. Investors who purchased the complicated mortgage backed securities wanted to know how risky they were, so they insisted on seeing the bonds’ “ratings.” Rating agencies were paid to investigate the details of each bond and to assign a rating which reflected the security’s risk. The securitizing firms paid the rating agencies to do the ratings. For example, Lehman Brothers hired Moody’s to rate some of their CDOs. Indeed, the investment banks would actually pay for advice from the rating agencies as they were designing the securities. The rating and consulting activities were extremely lucrative for the agencies, which ignored the obvious conflict of interest: The investment bank wanted a high rating, the rating agency got paid to help design securities that would qualify for a high rating, and high ratings led to continued business for the raters.

Insurance Wasn’t Insurance. To provide a higher rating and make these mortgage-backed securities look even more attractive to investors, the issuers would frequently purchase a type of insurance policy on the security called a **credit default swap**. For example, suppose you had wanted to purchase a CDO from Lehman Brothers but were worried about the risk. What if Lehman Brothers had agreed to pay an annual fee to an insurance company like AIG, which would guarantee the CDO’s payments if the underlying mortgages defaulted? You probably would have felt confident enough to buy the CDO.

But any similarity to a conventional insurance policy ends here. Unlike home insurance, where there is a single policyholder and a single insurer, totally uninvolved speculators can also make bets on your CDO by either selling or purchasing credit default swaps on the CDO. For example, a hedge fund could buy a credit default swap on your CDO if it thinks the CDO will default; or an investment bank like Bear Stearns could sell a swap, betting that the CDO won’t default. In fact, the International Swaps and Derivatives Association estimates that in mid-2008 there was about \$54 trillion in credit default swaps. This staggering amount is approximately 7 times the value of all U.S. mortgages, over 4 times the level of the U.S. national debt, and over twice the value of the entire U.S. stock market.

Another big difference is that home insurance companies are highly regulated, but there was virtually no regulation in the credit default swap market. The players

traded directly among themselves, with no central clearinghouse. It was almost impossible to tell how much risk any of the players had taken on, making it impossible to know whether or not counterparties like AIG would be able to fulfill their obligations in the event of a CDO default. And that made it impossible to know the value of CDOs held by many banks, which in turn made it impossible to judge whether or not those banks were de facto bankrupt.

Rocket Scientists Had Poor Rearview Mirrors. Brilliant financial experts, often trained in physics and hired from rocket science firms, built elegant models to determine the value of these new securities. Unfortunately, a model is only as good as its inputs. The experts looked at the high growth rates of recent real estate prices (see Figure 1-5) and assumed that future growth rates also would be high. These high growth rates caused models to calculate very high CDO prices, at least until the real estate market crumbled.

Investors Wanted More for Less. In the early 2000s, low-rated debt (including mortgage-backed securities), hedge funds, and private equity funds produced great rates of return. Many investors jumped into this debt to keep up with the Joneses. As shown in Chapter 5 when we discuss bond ratings and bond spreads, investors began lowering the premium they required for taking on extra risk. Thus, investors focused primarily on returns and largely ignored risk. In fairness, some investors assumed the credit ratings were accurate, and they trusted the representatives of the investment banks selling the securities. In retrospect, however, Warren Buffett's maxim that "I only invest in companies I understand" seems wiser than ever.

The Emperor Has No Clothes. In 2006, many of the option ARMs began to reset, borrowers began to default, and home prices first leveled off and then began to fall. Things got worse in 2007 and 2008, and by early 2009, almost 1 out of 10 mortgages was in default or foreclosure, resulting in displaced families and virtual ghost towns of new subdivisions. As homeowners defaulted on their mortgages, so did the CDOs backed by the mortgages. That brought down the counterparties like AIG who had insured the CDOs via credit default swaps. Virtually overnight, investors realized that mortgage-backed security default rates were headed higher and that the houses used as collateral were worth less than the mortgages. Mortgage-backed security prices plummeted, investors quit buying newly securitized mortgages, and liquidity in the secondary market disappeared. Thus, the investors who owned these securities were stuck with pieces of paper that were substantially lower than the values reported on their balance sheets.

From Sub-Prime Meltdown to Liquidity Crisis to Economic Crisis

Like the Andromeda strain, the sub-prime meltdown went viral, and it ended up infecting almost all aspects of the economy. Financial institutions were the first to fall. Many originating firms had not sold all of their sub-prime mortgages, and they failed. For example, New Century declared bankruptcy in 2007, IndyMac was placed under FDIC control in 2008, and Countrywide was acquired by Bank of America in 2008 to avoid bankruptcy.

Securitizing firms also crashed, partly because they kept some of the new securities they created. For example, Fannie Mae and Freddie Mac had huge losses on their portfolio assets, causing them to be virtually taken over by the Federal Housing

Finance Agency in 2008. In addition to big losses on their own sub-prime portfolios, many investment banks also had losses related to their positions in credit default swaps. Thus, Lehman Brothers was forced into bankruptcy, Bear Stearns was sold to JPMorgan Chase, and Merrill Lynch was sold to Bank of America, with huge losses to their stockholders.

Because Lehman Brothers defaulted on some of its commercial paper, investors in the Reserve Primary Fund, a big money market mutual fund, saw the value of its investments “break the buck,” dropping to less than a dollar per share. To avoid panic and a total lockdown in the money markets, the U.S. Treasury agreed to insure some investments in money market funds.

AIG was the number one backer of credit default swaps, and it operated worldwide. In 2008 it became obvious that AIG could not honor its commitments as a counterparty, so the Fed effectively nationalized AIG to avoid a domino effect in which AIG’s failure would topple hundreds of other financial institutions.

In normal times, banks provide liquidity to the economy and funding for credit-worthy businesses and individuals. These activities are absolutely crucial for a well-functioning economy. However, the financial contagion spread to commercial banks because some owned mortgage-backed securities, some owned commercial paper issued by failing institutions, and some had exposure to credit default swaps. As banks worried about their survival in the fall of 2008, they stopped providing credit to other banks and businesses. The market for commercial paper dried up to such an extent that the Fed began buying new commercial paper from issuing companies.

Banks also began hoarding cash rather than lending it. The Fed requires banks to keep 10% of the funds they raise from depositors on “reserve.” Banks use the other 90% to make loans or to buy securities. In aggregate, there usually has been about \$9 billion in excess reserves—that is, reserves over and above the 10% they are required to keep on hand. However, at the end of 2008, banks held over \$770 billion in excess reserves compared to \$75 billion in required reserves. This hoarding may have reduced the banks’ risk, but it deprived the economy of a much needed capital.

Consequently, there has been a reduction in construction, manufacturing, retailing, and consumption, all of which caused job losses in 2008 and 2009, with more expected in the future. In short, this has led to a serious recession in the United States and most of the developed world, a recession that brings back memories of the Great Depression of the 1930s.

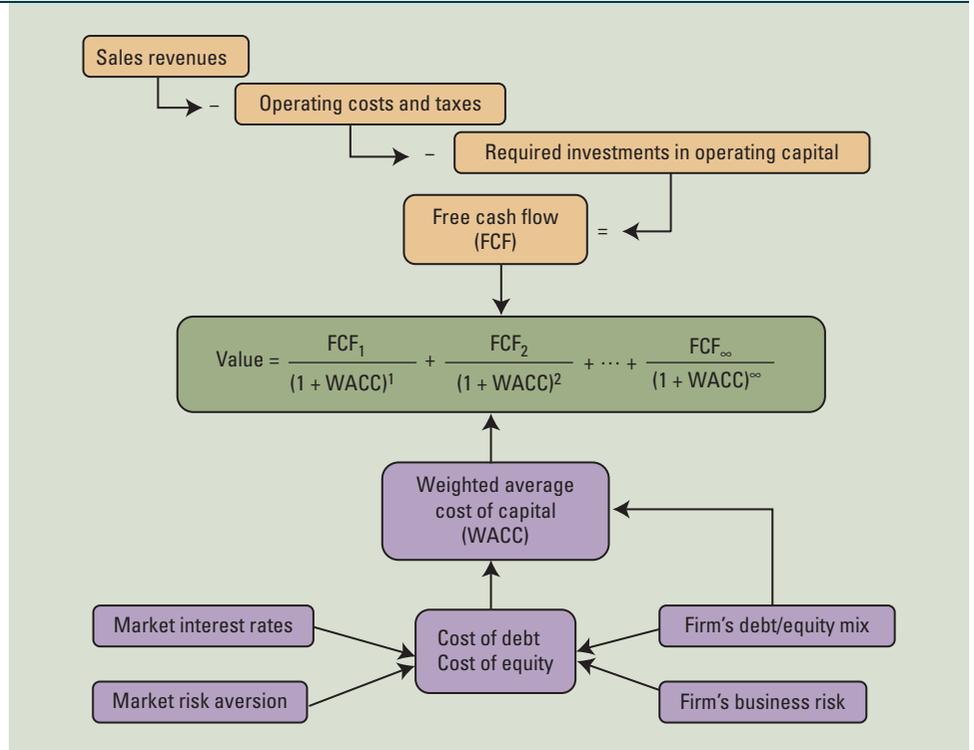
Self-Test

Briefly describe some of the mistakes that were made by participants in the sub-prime mortgage process.

1.14 THE BIG PICTURE

Finance has a lot of vocabulary and tools that might be new to you. To help you avoid getting bogged down in the trenches, Figure 1-6 presents the “big picture.” A manager’s primary job is to increase the company’s intrinsic value, but how exactly does one go about doing that? The equation in the center of Figure 1-6 shows that intrinsic value is the present value of the firm’s expected free cash flows, discounted at the weighted average cost of capital. Thus, there are two approaches for increasing intrinsic value: Improve FCF or reduce the WACC. Observe that several factors affect FCF and several factors affect the WACC. In the rest of the book’s chapters, we will typically focus on only one of these factors, systematically building the vocabu-

FIGURE 1-6 The Determinants of Intrinsic Value: The Big Picture



lary and tools that you will use after graduation to improve your company's intrinsic value. It is true that every manager needs to understand financial vocabulary and be able to apply financial tools, but really successful managers also understand how their decisions affect the big picture. So as you read this book, keep in mind where each topic fits into the big picture.

e-RESOURCES

The textbook's Web site contains several types of files that will be helpful to you:

1. It contains *Excel* files, called *Tool Kits*, that provide well-documented models for almost all of the text's calculations. Not only will these *Tool Kits* help you with this finance course, they also will serve as tool kits for you in other courses and in your career.
2. There are problems at the end of the chapters that require spreadsheets, and the Web site contains the models you will need to begin work on these problems.



When we think it might be helpful for you to look at one of the Web site's files, we'll show an icon in the margin like the one shown here.

Other resources are also on the Web site, including Cyberproblems and problems that use the Thomson ONE—Business School Edition Web site. The textbook's Web site also contains an electronic library that contains Adobe PDF

files for “extensions” to many chapters that cover additional useful material related to the chapter.

Summary

- The three main forms of business organization are the **proprietorship**, the **partnership**, and the **corporation**. Although each form of organization offers advantages and disadvantages, *corporations conduct much more business than the other forms*.
- The primary objective of management should be to *maximize stockholders' wealth*, and this means *maximizing the company's fundamental*, or **intrinsic, stock price**. Legal actions that maximize stock prices usually increase social welfare.
- **Free cash flows (FCFs)** are the cash flows available for distribution to all of a firm's investors (shareholders and creditors) after the firm has paid all expenses (including taxes) and has made the required investments in operations to support growth.
- The **weighted average cost of capital (WACC)** is the average return required by all of the firm's investors. It is determined by the firm's *capital structure* (the firm's relative amounts of debt and equity), *interest rates*, the firm's *risk*, and the *market's attitude toward risk*.
- The value of a firm depends on the size of the firm's free cash flows, the timing of those flows, and their risk. A **firm's fundamental**, or **intrinsic, value** is defined by

$$\text{Value} = \frac{\text{FCF}_1}{(1 + \text{WACC})^1} + \frac{\text{FCF}_2}{(1 + \text{WACC})^2} + \frac{\text{FCF}_3}{(1 + \text{WACC})^3} + \dots + \frac{\text{FCF}_\infty}{(1 + \text{WACC})^\infty}$$

- Transfers of capital between borrowers and savers take place (1) by **direct transfers** of money and securities; (2) by transfers through **investment banking houses**, which act as go-betweens; and (3) by transfers through **financial intermediaries**, which create new securities.
- Four fundamental factors affect the cost of money: (1) **production opportunities**, (2) **time preferences for consumption**, (3) **risk**, and (4) **inflation**.
- **Derivatives**, such as options, are claims on other financial securities. In **securitization**, new securities are created from claims on packages of other securities.
- Major financial institutions include **commercial banks, savings and loan associations, mutual savings banks, credit unions, pension funds, life insurance companies, mutual funds, money market funds, hedge funds, and private equity funds**.
- **Spot markets** and **futures markets** are terms that refer to whether the assets are bought or sold for “on-the-spot” delivery or for delivery at some future date.
- **Money markets** are the markets for debt securities with maturities of less than a year. **Capital markets** are the markets for long-term debt and corporate stocks.
- **Primary markets** are the markets in which corporations raise new capital. **Secondary markets** are markets in which existing, already outstanding securities are traded among investors.
- Orders from buyers and sellers can be matched in one of three ways: (1) in an open outcry **auction**, (2) through **dealers**, and (3) automatically through an **electronic communications network (ECN)**.

- There are two basic types of markets—the physical location exchanges (such as the NYSE) and computer/telephone networks (such as Nasdaq).
- *Web Extension 1A* discusses derivatives, and *Web Extension 1B* provides additional coverage of stock markets.

Questions

- (1–1) Define each of the following terms:
- Proprietorship; partnership; corporation
 - Limited partnership; limited liability partnership; professional corporation
 - Stockholder wealth maximization
 - Money market; capital market; primary market; secondary market
 - Private markets; public markets; derivatives
 - Investment banker; financial services corporation; financial intermediary
 - Mutual fund; money market fund
 - Physical location exchanges; computer/telephone network
 - Open outcry auction; dealer market; electronic communications network (ECN)
 - Production opportunities; time preferences for consumption
 - Foreign trade deficit
- (1–2) What are the three principal forms of business organization? What are the advantages and disadvantages of each?
- (1–3) What is a firm's fundamental, or intrinsic, value? What might cause a firm's intrinsic value to be different than its actual market value?
- (1–4) Edmund Enterprises recently made a large investment to upgrade its technology. Although these improvements won't have much of an impact on performance in the short run, they are expected to reduce future costs significantly. What impact will this investment have on Edmund Enterprises's earnings per share this year? What impact might this investment have on the company's intrinsic value and stock price?
- (1–5) Describe the different ways in which capital can be transferred from suppliers of capital to those who are demanding capital.
- (1–6) What are financial intermediaries, and what economic functions do they perform?
- (1–7) Is an initial public offering an example of a primary or a secondary market transaction?
- (1–8) Differentiate between dealer markets and stock markets that have a physical location.
- (1–9) Identify and briefly compare the two leading stock exchanges in the United States today.

Mini Case

Assume that you recently graduated and have just reported to work as an investment advisor at the brokerage firm of Balik and Kiefer Inc. One of the firm's clients is Michelle DellaTorre, a professional tennis player who has just come to the United States from Chile. DellaTorre is a highly ranked tennis player who would like to start a company to produce and market apparel she designs. She also expects to invest substantial amounts of money through Balik and Kiefer.

DellaTorre is very bright, and she would like to understand in general terms what will happen to her money. Your boss has developed the following set of questions you must answer to explain the U.S. financial system to DellaTorre.

- a. Why is corporate finance important to all managers?
- b. Describe the organizational forms a company might have as it evolves from a start-up to a major corporation. List the advantages and disadvantages of each form.
- c. How do corporations go public and continue to grow? What are agency problems? What is corporate governance?
- d. What should be the primary objective of managers?
 - (1) Do firms have any responsibilities to society at large?
 - (2) Is stock price maximization good or bad for society?
 - (3) Should firms behave ethically?
- e. What three aspects of cash flows affect the value of any investment?
- f. What are free cash flows?
- g. What is the weighted average cost of capital?
- h. How do free cash flows and the weighted average cost of capital interact to determine a firm's value?
- i. Who are the providers (savers) and users (borrowers) of capital? How is capital transferred between savers and borrowers?
- j. What do we call the price that a borrower must pay for debt capital? What is the price of equity capital? What are the four most fundamental factors that affect the cost of money, or the general level of interest rates, in the economy?
- k. What are some economic conditions (including international aspects) that affect the cost of money?
 - l. What are financial securities? Describe some financial instruments.
- m. List some financial institutions.
- n. What are some different types of markets?
- o. How are secondary markets organized?
 - (1) List some physical location markets and some computer/telephone networks.
 - (2) Explain the differences between open outcry auctions, dealer markets, and electronic communications networks (ECNs).
- p. Briefly explain mortgage securitization and how it contributed to the global economic crisis.