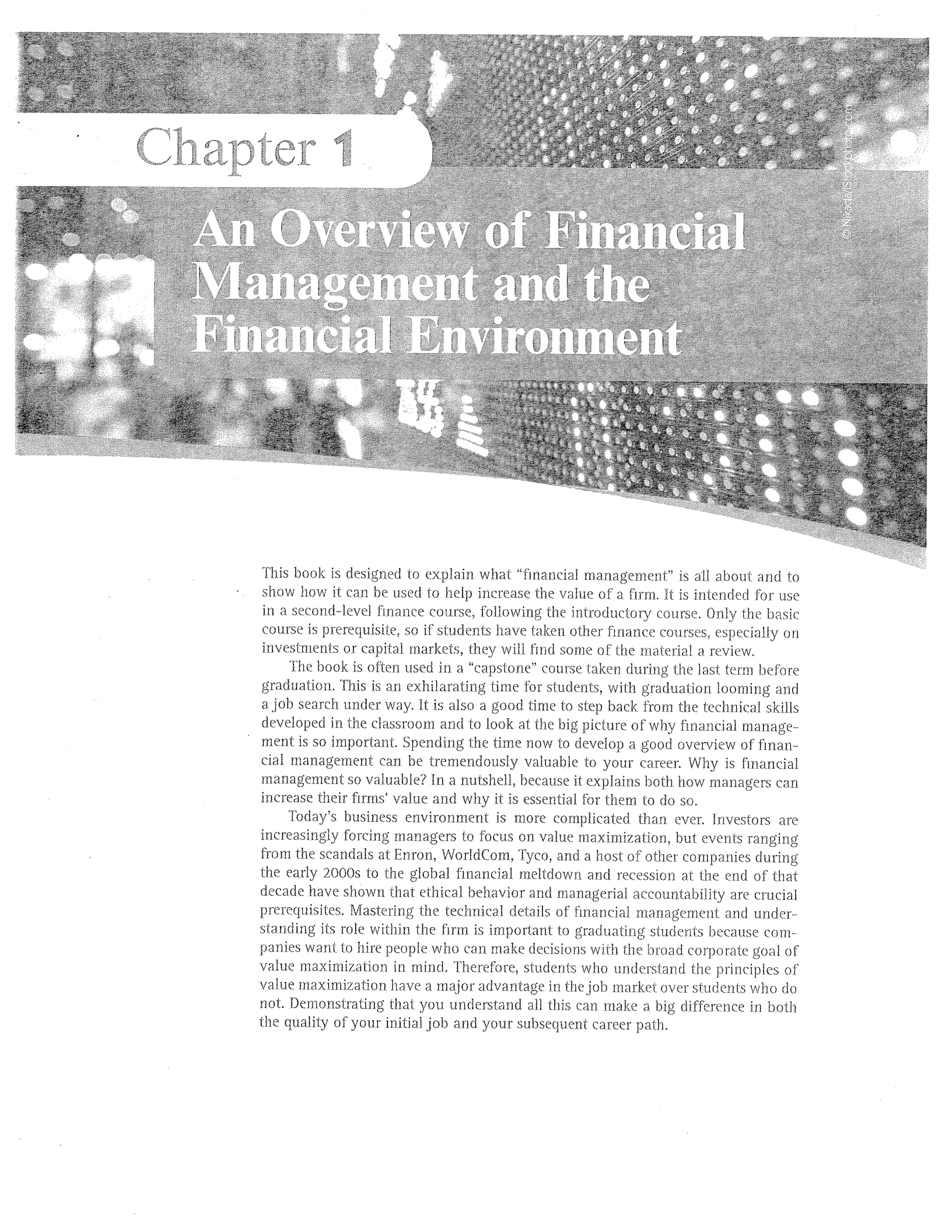




Chapter 1

An Overview of Financial Management and the Financial Environment

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This book is designed to explain what “financial management” is all about and to show how it can be used to help increase the value of a firm. It is intended for use in a second-level finance course, following the introductory course. Only the basic course is prerequisite, so if students have taken other finance courses, especially on investments or capital markets, they will find some of the material a review.

The book is often used in a “capstone” course taken during the last term before graduation. This is an exhilarating time for students, with graduation looming and a job search under way. It is also a good time to step back from the technical skills developed in the classroom and to look at the big picture of why financial management is so important. Spending the time now to develop a good overview of financial management can be tremendously valuable to your career. Why is financial management so valuable? In a nutshell, because it explains both how managers can increase their firms' value and why it is essential for them to do so.

Today's business environment is more complicated than ever. Investors are increasingly forcing managers to focus on value maximization, but events ranging from the scandals at Enron, WorldCom, Tyco, and a host of other companies during the early 2000s to the global financial meltdown and recession at the end of that decade have shown that ethical behavior and managerial accountability are crucial prerequisites. Mastering the technical details of financial management and understanding its role within the firm is important to graduating students because companies want to hire people who can make decisions with the broad corporate goal of value maximization in mind. Therefore, students who understand the principles of value maximization have a major advantage in the job market over students who do not. Demonstrating that you understand all this can make a big difference in both the quality of your initial job and your subsequent career path.

Beginning of Chapter Questions

As you read the chapter, consider how you would answer the following questions. You *should not* necessarily be able to answer the questions before you read the chapter. Rather, you should use them to get a sense of the issues covered in the chapter. After reading the chapter, you should be able to give at least partial answers to the questions, and you should be able to give better answers after the chapter has been discussed in class. Note, too, that it is often useful, when answering conceptual questions, to use hypothetical data to illustrate your answer. For example, your answer to Question 2 would probably be better if it were illustrated with numbers. We have done this, using *Excel*; our model is available on the textbook's Web site. Accessing the model and working through it is a useful exercise.

1. What is presumed to be the **primary goal** of financial management? How is this goal related to other societal goals and considerations? Is this goal consistent with the basic assumptions of microeconomics? Are managers' actions always consistent with this goal?
2. Finance is all about **valuation**—how to estimate asset values and what to do to increase them. We develop and use *Excel* models throughout the book. We start that process in this chapter with simple models used to value bonds, stocks, and capital budgeting projects. Working through the model will give you a refresher in valuation plus a refresher on (or preview of) *Excel*. The model can be accessed on the textbook's Web site under the "Chapter Models" section. If you have never used *Excel* at all, then you should not

attempt to use it to help answer this question, or if you do, you should not get frustrated if you have trouble.

- a. Explain how to find the value of a bond given the rate of interest it pays (its coupon rate), its par value (assume \$1,000), and the going rate of interest on bonds with the same risk and maturity.
 - b. Explain how to find the value of a stock given its last dividend, its expected growth rate, and its required rate of return.
 - c. Explain how to find the value of a capital budgeting project given its cost, its expected annual net cash flows, its life, and its cost of capital.
 - d. In each of the above cases, discuss how changes in the inputs would affect the output. Would it matter if the outputs were highly sensitive to changes in the inputs?
3. What are the advantages of the corporate form over a sole proprietorship or a partnership? What are the disadvantages of this form?
 4. What are the various factors that affect the cost of money and hence interest rates? How will changes in these components affect asset prices?
 5. What is securitization? How is securitization supposed to help banks and S&Ls manage risks and increase homeowners' access to capital?
 6. What was the global economic crisis? This is a really big question, so, more specifically, explain how in our interconnected global economy a decrease in housing prices in large U.S. cities ended up bankrupting Norwegian retirees.

1.1 How to Use This Text

In your introductory finance course, you learned a number of terms and concepts, and you now have an idea of what financial management is all about. However, you probably focused on individual chapters, or sections of chapters, and you probably prepared for exams that consisted of relatively simple problems and short-answer questions, often given in a multiple-choice format. That was a necessary part of the learning process, but now it is time to move on.

In *Intermediate Financial Management*, we go back over much of what you covered in the introductory course, plus introduce new material. However, our focus now is different. At this point we want you to learn how to *apply* the concepts, how to obtain the data necessary to implement the various decision models, and how to relate the various parts of finance to one another. So, while we revisit topics such as

the net present value (NPV) and internal rate of return (IRR) methods, we delve into them more deeply, considering how to streamline and automate the calculations, how to obtain the necessary data, and how errors in the data affect the outcome. We also spend more time comparing the topics covered in different chapters to one another. For example, you probably did not spend much time considering how the cost of capital, capital structure, dividend policy, and capital budgeting are related to one another, but we now discuss these critically important relationships.

Also, since spreadsheets such as *Excel*, not financial calculators, are used to analyze actual business decisions, you need to be proficient with spreadsheets to get many good jobs and certainly to succeed in those jobs. Therefore, we explain how to do the most common types of financial analyses using *Excel*. This focus has two benefits: Knowledge of *Excel* is useful per se, and setting up and analyzing the output from spreadsheet models will also teach you a lot about financial concepts.

To help sharpen your focus, we start each chapter with several *Beginning of Chapter Questions*. Some of these questions are designed to help you see how the chapter ties in with other chapters, while others will help you think about how the concepts are applied in the real world. You probably won't be able to answer all of the questions when you start working through the chapter, but that's fine! The questions aren't a pre-test. Their purpose is to help guide you through the material, and having them in mind when you read will help you understand the chapter in a more integrative and relevant way.

Most of the chapters have two spreadsheet models, which are available on the textbook's Web site. The first is a "Tool Kit," which contains the *Excel* models used to generate most of the tables and examples in the chapter. The second is a model that deals with specific *Beginning of Chapter Questions*. Both models contain notes and comments that explain the *Excel* procedures we used, so they can be used as a tutorial for learning more about both *Excel* and finance. Again, since recruiters prefer students who are good with *Excel*, learning more about it will help you get a better job and then succeed in it.

WEB

Visit the *Intermediate Financial Management 11e* textbook companion site to access student and instructor resources.

THE GLOBAL ECONOMIC CRISIS

What Is 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 that faced the world's financial markets and economies in 2008 and 2009.

What exactly was 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. Those investments turned out to be worth less than the amounts owed by the borrowers, forcing widespread bankruptcies, buyouts, and restructurings for both borrowers and lenders. This in

turn reduced the supply of available funds that financial institutions normally lent to creditworthy individuals, manufacturers, and retailers. Without access to credit, consumers bought less, manufacturers produced less, and retailers sold less—all of which led to layoffs. According to the National Bureau of Economic Research, the resulting recession lasted from December 2007 through June 2009, and as of the writing of this chapter in mid-2011, the U.S. economy is still not growing very quickly. 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 www.cengage.com/gec and log in.

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.

1.2a 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 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.

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 in 2010 than both Europe and the United States together, 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.

1.2b 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 partner is willing to be the general partner and thus accept the majority of the business's risk, and no partners 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.

1.2c 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 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**.

1.2d 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

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

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 controls the company's behavior towards its directors, managers, employees, shareholders, creditors, customers, competitors, and community. We will have much more to say about agency problems and corporate governance throughout the book, especially in Chapters 11, 15, and 17.³

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*.⁴

3. The 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.
4. This is a reasonable assumption when management has significant ownership in the company or when there is a well-designed management compensation plan. However, it is probably fair to say that when a management compensation plan is poorly designed, *management wealth maximization* may take over and lead to decisions that are inconsistent with shareholder wealth maximization. A good rule of thumb is that when a managerial decision appears to be at odds with shareholder wealth maximization, the explanation is either management's compensation plan or oddities in tax regulations.

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 for the company above. The 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 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*.

1.3a 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, exploiting monopoly power, violating safety codes, and failing to meet

WWW

The Security Industry Association's Web site, 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.

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. Andersen 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.

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.

1.3b 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 7, but for now you should know that free cash flow is:

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

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.

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:

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

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

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?

Self Test

1.4 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.

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

1.4a 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.

WEB

For an overview of derivatives, see **Web Extension 1A** on the textbook's Web site.

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 6 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.

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.

1.4b 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 or 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.

TABLE 1-1 Summary of Major Financial Instruments

Instrument	Major Participants	Risk	Original Maturity	Rates of Return on 5/10/11 ^a
U.S. Treasury bills	Sold by U.S. Treasury	Default-free	91 days to 1 year	0.07%
Bankers' acceptances	A firm's promise to pay, guaranteed by a bank	Low if strong bank guarantees	Up to 180 days	0.33%
Commercial paper	Issued by financially secure firms to large investors	Low default risk	Up to 270 days	0.17%
Negotiable certificates of deposit (CDs)	Issued by major banks to large investors	Depends on strength of issuer	Up to 1 year	0.30%
Money market mutual funds	Invest in short-term debt; held by individuals and businesses	Low degree of risk	No specific maturity (instant liquidity)	0.62%
Eurodollar market time deposits	Issued by banks outside the United States	Depends on strength of issuer	Up to 1 year	0.30%
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 (0.42%) ^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	3.17%
Mortgages	Loans secured by property	Risk is variable	Up to 30 years	3.94%
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	3.95%
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	4.97%
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* (online.wsj.com) or the *Federal Reserve Statistical Release* (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.

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.

1.5 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.

1.5a 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%.

1.5b 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 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. 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 mid-2011. 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

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

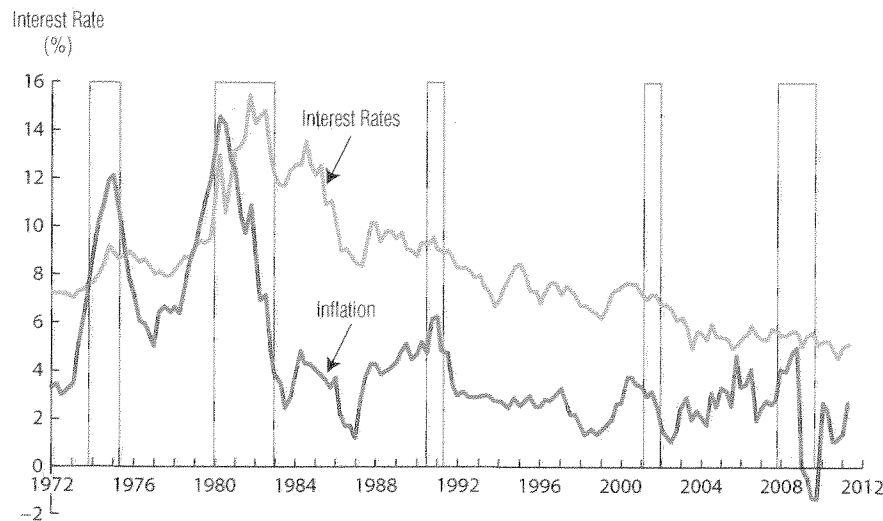
securities, which leads to lower security prices and higher interest rates. Other federal government actions that increase the money supply also increase expectations for future inflation, which drives up interest rates. Thus, the larger the federal deficit, other things held constant, the higher the level of interest rates. Since 1962, the federal government has run a deficit every year except two (2000 and 2001). Annual deficits in the mid-1990s were in the \$250 billion range, while the 2009 and 2010 deficits were about six times that level at \$1.5 and \$1.4 trillion. These huge deficits have contributed to the cumulative federal debt, which as of mid-2011 stands at over \$14 trillion.

Business Activity

Figure 1-1 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 1-1 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 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/>.

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.⁵ 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 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, and 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 exceeds *\$14 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.

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

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Transparency International provides a ranking of countries based on their levels of perceived corruption. See www.transparency.org/policy_research/surveys_indices/cpi/2010. The U.S. Department of State provides thorough descriptions of countries' business climates at www.state.gov/e/eeb/rls/othr/lcs/index.htm.

5. The 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.

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 27.

What four fundamental factors affect the cost of money?

Self Test

Name some economic conditions that influence interest rates, and explain their effects.

1.6 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.

1.6a 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.

Home Purchase

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

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.

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 5 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.

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.

1.6b The Dark Side of Securitization: The Sub-Prime Mortgage Meltdown

What caused the financial crisis? Entire books have been 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

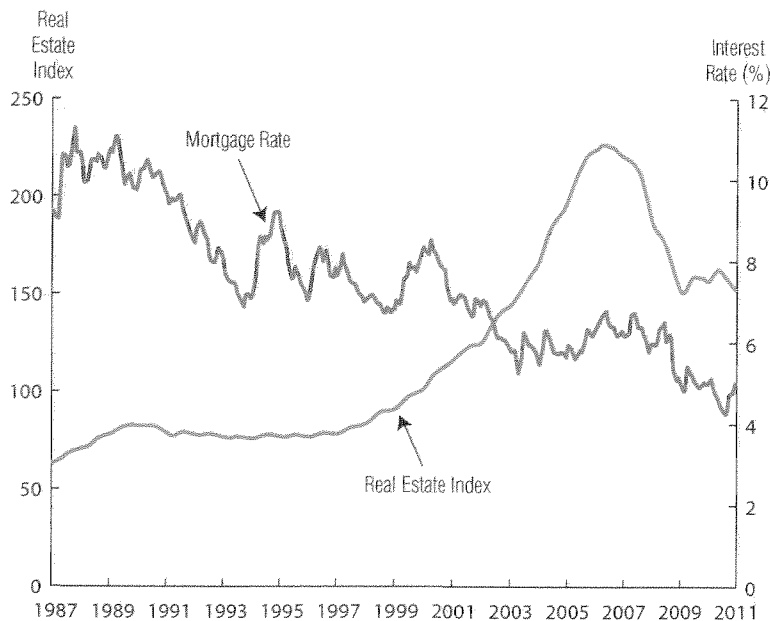
With more people able to get a mortgage, including people who should not have obtained one, the demand for homes increased. This alone would have driven up house prices. However, the Fed also slashed interest rates to historic lows after the terrorist attacks of 9/11 to prevent a recession, and it kept 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 1-2 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

Figure 1-2 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 www.standardandpoors.com/indices/sp-case-shiller-home-price-indices/en/us/?indexId=spusa.
2. Interest rates are for 30-year conventional fixed-rate mortgages, available from the St. Louis Federal Reserve: <http://research.stlouisfed.org/fred/>.

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 32 months was reset to \$2,454 for the remaining 328 months.

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 short-sighted, 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 that reflected the security’s risk. The securitizing firms paid the rating agencies to

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. As of May 2011, excess reserves stand at almost double this figure, \$1.4 trillion. This hoarding may reduce the banks’ risk, but it deprives the economy of much-needed capital.

The reduction in construction, manufacturing, retailing, and consumption caused job losses in 2008 and 2009, exacerbated the recession that began in late 2007, and weakened the recovery that nominally began in June 2009. The recession itself was the worst recession since the Great Depression of the 1930s and was international in its scope.

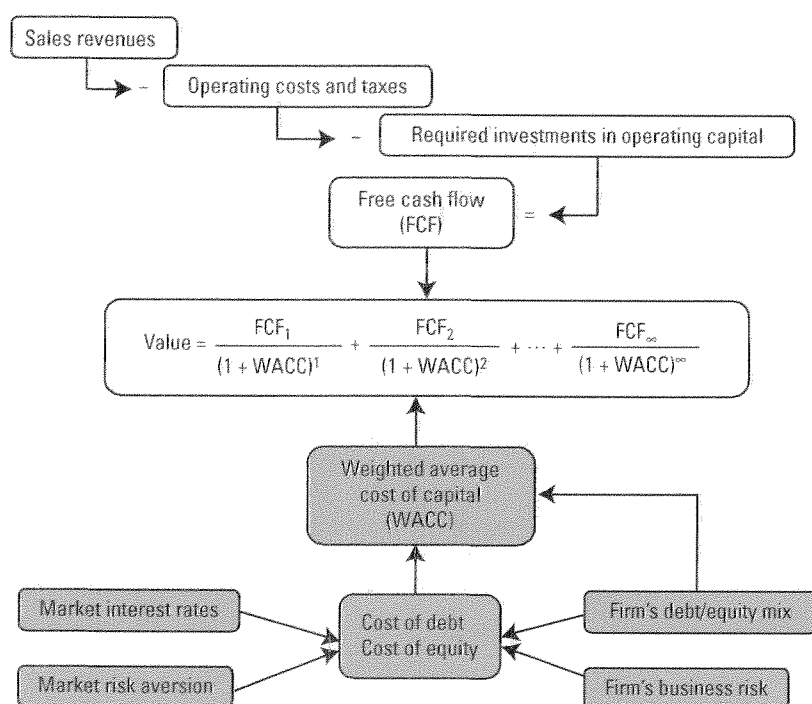
Briefly describe some of the mistakes that were made by participants in the sub-prime mortgage process.

Self Test

1.7 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 1-3 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 1-3 shows that

Figure 1-3 The Determinants of Intrinsic Value: The Big Picture



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 vocabulary 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

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

- 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.
- *Web Extension 1A* discusses derivatives, and *Web Extension 1B* provides some background coverage of stock markets.

Questions

- 1-1 Define each of the following terms:
 - a. Proprietorship; partnership; corporation
 - b. Limited partnership; limited liability partnership; professional corporation
 - c. Stockholder wealth maximization
 - d. Production opportunities; time preferences for consumption
 - e. Foreign trade deficit
 - f. Securitization
- 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?

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. 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?
- j. What are some economic conditions (including international aspects) that affect the cost of money?
- k. What are financial securities? Describe some financial instruments.
- l. Briefly explain mortgage securitization and how it contributed to the global economic crisis.

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 uninformed 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 was 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 1-2) 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 4 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.

1.6c 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 fail. 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 largest 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.