

THE INVESTMENT ENVIRONMENT

AN INVESTMENT IS the *current* commitment of money or other resources in the expectation of reaping *future* benefits. For example, an individual might purchase shares of stock anticipating that the future proceeds from the shares will justify both the time that her money is tied up as well as the risk of the investment. The time you will spend studying this text (not to mention its cost) also is an investment. You are forgoing either current leisure or the income you could be earning at a job in the expectation that your future career will be sufficiently enhanced to justify this commitment of time and effort. While these two investments differ in many ways, they share one key attribute that is central to all investments: You sacrifice something of value now, expecting to benefit from that sacrifice later.

This text can help you become an informed practitioner of investments. We will focus on investments in securities such as stocks, bonds, or options and futures contracts, but much of what we discuss will be useful in the analysis of any type of investment. The text will provide you with background in the organization of various securities markets; will survey

the valuation and risk-management principles useful in particular markets, such as those for bonds or stocks; and will introduce you to the principles of portfolio construction.

Broadly speaking, this chapter addresses three topics that will provide a useful perspective for the material that is to come later. First, before delving into the topic of “investments,” we consider the role of financial assets in the economy. We discuss the relationship between securities and the “real” assets that actually produce goods and services for consumers, and we consider why financial assets are important to the functioning of a developed economy. Given this background, we then take a first look at the types of decisions that confront investors as they assemble a portfolio of assets. These investment decisions are made in an environment where higher returns usually can be obtained only at the price of greater risk and in which it is rare to find assets that are so mispriced as to be obvious bargains. These themes—the risk–return trade-off and the efficient pricing of financial assets—are central to the investment process, so it is worth pausing for a brief discussion of their

implications as we begin the text. These implications will be fleshed out in much greater detail in later chapters.

Finally, we conclude with an introduction to the organization of security markets, the various players that participate in those markets, and a brief

overview of some of the more important changes in those markets in recent years. Together, these various topics should give you a feel for who the major participants are in the securities markets as well as the setting in which they act. We close with an overview of the remainder of the text.

1.1

REAL ASSETS VERSUS FINANCIAL ASSETS

The material wealth of a society is ultimately determined by the productive capacity of its economy, that is, the goods and services its members can create. This capacity is a function of the **real assets** of the economy: the land, buildings, machines, and knowledge that can be used to produce goods and services.

In contrast to such real assets are **financial assets** such as stocks and bonds. Such securities are no more than sheets of paper or, more likely, computer entries and do not contribute directly to the productive capacity of the economy. Instead, these assets are the means by which individuals in well-developed economies hold their claims on real assets. Financial assets are claims to the income generated by real assets (or claims on income from the government). If we cannot own our own auto plant (a real asset), we can still buy shares in General Motors or Toyota (financial assets) and, thereby, share in the income derived from the production of automobiles.

While real assets generate net income to the economy, financial assets simply define the allocation of income or wealth among investors. Individuals can choose between consuming their wealth today or investing for the future. If they choose to invest, they may place their wealth in financial assets by purchasing various securities. When investors buy these securities from companies, the firms use the money so raised to pay for real assets, such as plant, equipment, technology, or inventory. So investors' returns on securities ultimately come from the income produced by the real assets that were financed by the issuance of those securities.

The distinction between real and financial assets is apparent when we compare the balance sheet of U.S. households, shown in Table 1.1, with the composition of national wealth in the United States, shown in Table 1.2. Household wealth includes financial assets such as bank accounts, corporate stock, or bonds. However, these securities, which are financial assets of households, are *liabilities* of the issuers of the securities. For example, a bond that you treat as an asset because it gives you a claim on interest income and repayment of principal from General Motors is a liability of General Motors, which is obligated to make these payments to you. Your asset is GM's liability. Therefore, when we aggregate over all balance sheets, these claims cancel out, leaving only real assets as the net wealth of the economy. National wealth consists of structures, equipment, inventories of goods, and land.¹

¹You might wonder why real assets held by households in Table 1.1 amount to \$27,086 billion, while total real assets in the domestic economy (Table 1.2) are far larger, at \$48,038 billion. One major reason is that real assets held by firms, for example, property, plant, and equipment, are included as *financial* assets of the household sector, specifically through the value of corporate equity and other stock market investments. Another reason is that equity and stock investments in Table 1.1 are measured by market value, whereas plant and equipment in Table 1.2 are valued at replacement cost.

Assets	\$ Billion	% Total	Liabilities and Net Worth	\$ Billion	% Total
Real assets					
Real estate	\$22,874	32.9%	Mortgages	\$10,070	14.5%
Consumer durables	3,966	5.7	Consumer credit	2,413	3.5
Other	247	0.4	Bank and other loans	222	0.3
<i>Total real assets</i>	<u>\$27,086</u>	<u>38.9%</u>	Security credit	310	0.4
			Other	418	0.6
			<i>Total liabilities</i>	<u>\$13,432</u>	<u>19.3%</u>
Financial assets					
Deposits	\$ 6,629	9.5%			
Life insurance reserves	1,174	1.7			
Pension reserves	12,188	17.5			
Corporate equity	5,391	7.7			
Equity in noncorp. business	7,553	10.9			
Mutual fund shares	5,123	7.4			
Debt securities	3,160	4.5			
Other	1,305	1.9			
<i>Total financial assets</i>	<u>42,522</u>	<u>61.1</u>	<i>Net worth</i>	<u>56,176</u>	<u>80.7</u>
<i>Total</i>	<u>\$69,608</u>	<u>100.0%</u>		<u>\$69,608</u>	<u>100.0%</u>

TABLE 1.1**Balance sheet of U.S. households, 2007**

Note: Column sums may differ from total because of rounding error.

Source: *Flow of Funds Accounts of the United States*, Board of Governors of the Federal Reserve System, June 2007.

Assets	\$ Billion
Nonresidential real estate	\$ 9,549
Residential real estate	28,265
Equipment and software	4,498
Inventories	1,759
Consumer durables	3,966
<i>Total</i>	<u>\$ 48,038</u>

TABLE 1.2**Domestic net worth**

Note: Column sums may differ from total because of rounding error.

Source: *Flow of Funds Accounts of the United States*, Board of Governors of the Federal Reserve System, June 2007.

We will focus almost exclusively on financial assets. But you shouldn't lose sight of the fact that the successes or failures of the financial assets we choose to purchase ultimately depend on the performance of the underlying real assets.

CONCEPT CHECK**1**

Are the following assets real or financial?

- Patents
- Lease obligations
- Customer goodwill
- A college education
- A \$5 bill

1.2 A TAXONOMY OF FINANCIAL ASSETS

It is common to distinguish among three broad types of financial assets: fixed income, equity, and derivatives. **Fixed-income** or **debt securities** promise either a fixed stream of income or a stream of income that is determined according to a specified formula. For example, a corporate bond typically would promise that the bondholder will receive a fixed amount of interest each year. Other so-called floating-rate bonds promise payments that depend on current interest rates. For example, a bond may pay an interest rate that is fixed at 2 percentage points above the rate paid on U.S. Treasury bills. Unless the borrower is declared bankrupt, the payments on these securities are either fixed or determined by formula. For this reason, the investment performance of debt securities typically is least closely tied to the financial condition of the issuer.

Nevertheless, fixed-income securities come in a tremendous variety of maturities and payment provisions. At one extreme, the *money market* refers to debt securities that are short term, highly marketable, and generally of very low risk. Examples of money market securities are U.S. Treasury bills or bank certificates of deposit (CDs). In contrast, the fixed-income *capital market* includes long-term securities such as Treasury bonds, as well as bonds issued by federal agencies, state and local municipalities, and corporations. These bonds range from very safe in terms of default risk (for example, Treasury securities) to relatively risky (for example, high yield or “junk” bonds). They also are designed with extremely diverse provisions regarding payments provided to the investor and protection against the bankruptcy of the issuer. We will take a first look at these securities in Chapter 2 and undertake a more detailed analysis of the debt market in Part Four.

Unlike debt securities, common stock, or **equity**, in a firm represents an ownership share in the corporation. Equityholders are not promised any particular payment. They receive any dividends the firm may pay and have prorated ownership in the real assets of the firm. If the firm is successful, the value of equity will increase; if not, it will decrease. The performance of equity investments, therefore, is tied directly to the success of the firm and its real assets. For this reason, equity investments tend to be riskier than investments in debt securities. Equity markets and equity valuation are the topics of Part Five.

Finally, **derivative securities** such as options and futures contracts provide payoffs that are determined by the prices of *other* assets such as bond or stock prices. For example, a call option on a share of Intel stock might turn out to be worthless if Intel’s share price remains below a threshold or “exercise” price such as \$30 a share, but it can be quite valuable if the stock price rises above that level.² Derivative securities are so named because their values derive from the prices of other assets. For example, the value of the call option will depend on the price of Intel stock. Other important derivative securities are futures and swap contracts. We will treat these in Part Six.

Derivatives have become an integral part of the investment environment. One use of derivatives, perhaps the primary use, is to hedge risks or transfer them to other parties. This is done successfully every day, and the use of these securities for risk management is so commonplace that the multitrillion-dollar market in derivative assets is routinely taken for granted. Derivatives also can be used to take highly speculative positions, however. Every

²A call option is the right to buy a share of stock at a given exercise price on or before the option’s expiration date. If the market price of Intel remains below \$30 a share, the right to buy for \$30 will turn out to be valueless. If the share price rises above \$30 before the option expires, however, the option can be exercised to obtain the share for only \$30.

so often, one of these positions blows up, resulting in well-publicized losses of hundreds of millions of dollars. While these losses attract considerable attention, they are in fact the exception to the more common use of such securities as risk management tools. Derivatives will continue to play an important role in portfolio construction and the financial system. We will return to this topic later in the text.

In addition to these financial assets, individuals might invest directly in some real assets. For example, real estate or commodities such as precious metals or agricultural products are real assets that might form part of an investment portfolio.

1.3 FINANCIAL MARKETS AND THE ECONOMY

We stated earlier that real assets determine the wealth of an economy, while financial assets merely represent claims on real assets. Nevertheless, financial assets and the markets in which they trade play several crucial roles in developed economies. Financial assets allow us to make the most of the economy's real assets.

The Informational Role of Financial Markets

In a capitalist system, financial markets play a central role in the allocation of capital resources. Investors in the stock market ultimately decide which companies will live and which will die. If a corporation seems to have good prospects for future profitability, investors will bid up its stock price. The company's management will find it easy to issue new shares or borrow funds to finance research and development, build new production facilities, and expand its operations. The nearby box provides an illustration of this process. As Google's stock price has surged, it has been able to expand and initiate many new business prospects. If, on the other hand, a company's prospects seem poor, investors will bid down its stock price. The company will have to downsize and may eventually disappear.

The process by which capital is allocated through the stock market sometimes seems wasteful. Some companies can be "hot" for a short period of time, attract a large flow of investor capital, and then fail after only a few years. But that is an unavoidable implication of uncertainty. It is impossible to predict with certainty which ventures will succeed and which will fail. But the stock market encourages allocation of capital to those firms that appear *at the time* to have the best prospects. Many smart, well-trained, and well-paid professionals analyze the prospects of firms whose shares trade on the stock market. Stock prices reflect their collective judgment.

Consumption Timing

Some individuals in an economy are earning more than they currently wish to spend. Others, for example, retirees, spend more than they currently earn. How can you shift your purchasing power from high-earnings periods to low-earnings periods of life? One way is to "store" your wealth in financial assets. In high-earnings periods, you can invest your savings in financial assets such as stocks and bonds. In low-earnings periods, you can sell these assets to provide funds for your consumption needs. By so doing, you can "shift" your consumption over the course of your lifetime, thereby allocating your consumption to periods that provide the greatest satisfaction. Thus, financial markets allow individuals to separate decisions concerning current consumption from constraints that otherwise would be imposed by current earnings.

GOOGLING FOR GOLD

With the news that shares of online search giant Google Inc. (GOOG) had crossed the lofty \$400-per-share mark in November 2005, the world may have witnessed something akin to the birth of a new financial planetary system. Given its market cap of \$120 billion, double that of its nearest competitor, Yahoo!, Google now has the gravitational pull to draw in a host of institutions and company matchmakers unable to resist the potential profit opportunities. Google stock, with a price-earnings ratio of 70, represents one of the richest dealmaking currencies anywhere. That heft has attracted a growing galaxy of entrepreneurs, venture capitalists, and investment bankers, all of whom are orbiting Google in the hopes of selling it something—a new service, a start-up company, even a new strategy—anything to get their hands on a little of the Google gold.

The Google effect is already changing the delicate balance in Silicon Valley between venture capitalists

(VCs) and start-up companies. Instead of nurturing the most promising start-ups with an eye toward taking the fledgling businesses public, a growing number of VCs now scour the landscape for anyone with a technology or service that might fill a gap in Google's portfolio. Google itself and not the larger market has become the exit strategy as VCs plan for the day they can take their money out of their start-ups. Business founders have felt the tug as well. "You're hearing about a lot of entrepreneurs pitching VCs with their end goal to be acquired by Google," says Daniel Primack, editor of *PE Week Wire*, a dealmaking digest popular in VC circles. "It's a complete 180 [degree turn] from the IPO craze of five years ago; now Google is looked at like NASDAQ was then." Other entrepreneurs, meanwhile, are skipping the VC stage altogether, hoping to sell directly to Google.

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Allocation of Risk

Virtually all real assets involve some risk. When GM builds its auto plants, for example, it cannot know for sure what cash flows those plants will generate. Financial markets and the diverse financial instruments traded in those markets allow investors with the greatest taste for risk to bear that risk, while other, less risk-tolerant individuals can, to a greater extent, stay on the sidelines. For example, if GM raises the funds to build its auto plant by selling both stocks and bonds to the public, the more optimistic or risk-tolerant investors can buy shares of stock in GM, while the more conservative ones can buy GM bonds. Because the bonds promise to provide a fixed payment, the stockholders bear most of the business risk but reap potentially higher rewards. Thus, capital markets allow the risk that is inherent to all investments to be borne by the investors most willing to bear that risk.

This allocation of risk also benefits the firms that need to raise capital to finance their investments. When investors are able to select security types with the risk-return characteristics that best suit their preferences, each security can be sold for the best possible price. This facilitates the process of building the economy's stock of real assets.

Separation of Ownership and Management

Many businesses are owned and managed by the same individual. This simple organization is well-suited to small businesses and, in fact, was the most common form of business organization before the Industrial Revolution. Today, however, with global markets and large-scale production, the size and capital requirements of firms have skyrocketed. For example, at the end of 2006 General Electric listed on its balance sheet about \$75 billion of property, plant, and equipment, and total assets of nearly \$700 billion. Corporations of such size simply cannot exist as owner-operated firms. GE actually has about 625,000 stockholders with an ownership stake in the firm proportional to their holdings of shares.

Such a large group of individuals obviously cannot actively participate in the day-to-day management of the firm. Instead, they elect a board of directors that in turn hires and supervises the management of the firm. This structure means that the owners and managers of the firm are different parties. This gives the firm a stability that the owner-managed firm cannot achieve. For example, if some stockholders decide they no longer wish to hold

shares in the firm, they can sell their shares to other investors, with no impact on the management of the firm. Thus, financial assets and the ability to buy and sell those assets in the financial markets allow for easy separation of ownership and management.

How can all of the disparate owners of the firm, ranging from large pension funds holding hundreds of thousands of shares to small investors who may hold only a single share, agree on the objectives of the firm? Again, the financial markets provide some guidance. All may agree that the firm's management should pursue strategies that enhance the value of their shares. Such policies will make all shareholders wealthier and allow them all to better pursue their personal goals, whatever those goals might be.

Do managers really attempt to maximize firm value? It is easy to see how they might be tempted to engage in activities not in the best interest of shareholders. For example, they might engage in empire building or avoid risky projects to protect their own jobs or overconsume luxuries such as corporate jets, reasoning that the cost of such perquisites is largely borne by the shareholders. These potential conflicts of interest are called **agency problems** because managers, who are hired as agents of the shareholders, may pursue their own interests instead.

Several mechanisms have evolved to mitigate potential agency problems. First, compensation plans tie the income of managers to the success of the firm. A major part of the total compensation of top executives is often in the form of stock options, which means that the managers will not do well unless the stock price increases, benefiting shareholders. (Of course, we've learned more recently that overuse of options can create its own agency problem. Options can create an incentive for managers to manipulate information to prop up a stock price temporarily, giving them a chance to cash out before the price returns to a level reflective of the firm's true prospects. More on this shortly.) Second, while boards of directors are sometimes portrayed as defenders of top management, they can, and increasingly do, force out management teams that are underperforming. Third, outsiders such as security analysts and large institutional investors such as pension funds monitor the firm closely and make the life of poor performers at the least uncomfortable.

Finally, bad performers are subject to the threat of takeover. If the board of directors is lax in monitoring management, unhappy shareholders in principle can elect a different board. They can do this by launching a *proxy contest* in which they seek to obtain enough proxies (i.e., rights to vote the shares of other shareholders) to take control of the firm and vote in another board. However, this threat is usually minimal. Shareholders who attempt such a fight have to use their own funds, while management can defend itself using corporate coffers. Most proxy fights fail. The real takeover threat is from other firms. If one firm observes another underperforming, it can acquire the underperforming business and replace management with its own team. The stock price should rise to reflect the prospects of improved performance, which provides incentive for firms to engage in such takeover activity.

EXAMPLE 1.1 The Hewlett-Packard/Compaq Proxy Fight

When Carly Fiorina, then the CEO of Hewlett-Packard, proposed a merger with Compaq Computer in 2001, Walter Hewlett, son of the company's founder and member of the HP board of directors, dissented. The merger had to be approved by shareholders, and Hewlett engaged in a proxy fight to block the deal. One estimate is that HP spent \$150 million to lobby shareholders to support the merger; even small shareholders of HP reported receiving 20 or more phone calls from the company in support of the deal.³ The merger ultimately was approved in an uncharacteristically close vote. No surprise that less than 1% of public companies face proxy contests in any particular year.

Corporate Governance and Corporate Ethics

We've argued that securities markets can play an important role in facilitating the deployment of capital resources to their most productive uses. But for markets to effectively serve this purpose, there must be an acceptable level of transparency that allows investors to make well-informed decisions. If firms can mislead the public about their prospects, then much can go wrong.

Despite the many mechanisms to align incentives of shareholders and managers, the 3 years between 2000 and 2002 were filled with a seemingly unending series of scandals that collectively signaled a crisis in corporate governance and ethics. For example, the telecom firm WorldCom overstated its profits by at least \$3.8 billion by improperly classifying expenses as investments. When the true picture emerged, it resulted in the largest bankruptcy in U.S. history. The second-largest U.S. bankruptcy was Enron, which used its now-notorious "special-purpose entities" to move debt off its own books and similarly present a misleading picture of its financial status. Unfortunately, these firms had plenty of company. Other firms such as Rite Aid, HealthSouth, Global Crossing, and Qwest Communications also manipulated and misstated their accounts to the tune of billions of dollars. And the scandals were hardly limited to the United States. Parmalat, the Italian dairy firm, claimed to have a \$4.8 billion bank account that turned out not to exist. These episodes suggest that agency and incentive problems are far from solved.

Other scandals of that period included systematically misleading and overly optimistic research reports put out by stock market analysts. (Their favorable analysis was traded for the promise of future investment banking business, and analysts were commonly compensated not for their accuracy or insight, but for their role in garnering investment banking business for their firms.) Additionally, initial public offerings were allocated to corporate executives as a quid pro quo for personal favors or the promise to direct future business back to the manager of the IPO.

What about the auditors who were supposed to be the watchdogs of the firms? Here too, incentives were skewed. Recent changes in business practice had made the consulting businesses of these firms more lucrative than the auditing function. For example, Enron's (now-defunct) auditor Arthur Andersen earned more money consulting for Enron than by auditing it; given Arthur Andersen's incentive to protect its consulting profits, we should not be surprised that it, and other auditors, were overly lenient in their auditing work.

In 2002, in response to the spate of ethics scandals, Congress passed the Sarbanes-Oxley Act to tighten the rules of corporate governance. For example, the act requires corporations to have more independent directors, that is, more directors who are not themselves managers (or affiliated with managers). The act also requires each CFO to personally vouch for the corporation's accounting statements, created an oversight board to oversee the auditing of public companies, and prohibits auditors from providing various other services to clients.

In the wake of these scandals, Wall Street belatedly recognized that markets require trust to function. The value of reputation is better appreciated, and reliance on more straightforward incentive structures has increased. As one Wall Street insider put it, "This is an industry of trust; it's one of its key assets . . . [Wall Street] is going to have to invest in getting [that trust] back . . . without that trust, there's nothing."⁴ Ultimately, a firm's

³See "Designed by Committee," *The Economist*, June 13, 2002.

⁴"How Corrupt Is Wall Street?" *BusinessWeek*, May 13, 2002.

reputation for integrity is key to building long-term relationships with its customers and is therefore one of its most valuable assets. Indeed, the motto of the London Stock Exchange is “My word is my bond.” Every so often firms forget this lesson but, in the end, investments in reputation are in fact good business practice.

1.4 THE INVESTMENT PROCESS

Saving, Investing, and Safe Investing

Saving means not spending all of your current income on consumption. Investing, on the other hand, is choosing what assets to hold. You may choose to invest in safe assets, risky assets, or a combination of both. In common usage, however, the term *saving* is often taken to mean investing in safe assets such as an insured bank account. It is easy to confuse saving with safe investing. To avoid confusion remember this example. Suppose you earn \$100,000 a year from your job, and you spend \$80,000 of it on consumption. You are saving \$20,000. Suppose you decide to invest all \$20,000 in risky assets. You are still saving \$20,000, but you are not investing it safely.

An investor's *portfolio* is simply his collection of investment assets. Once the portfolio is established, it is updated or “rebalanced” by selling existing securities and using the proceeds to buy new securities, by investing additional funds to increase the overall size of the portfolio, or by selling securities to decrease the size of the portfolio.

Investment assets can be categorized into broad asset classes, such as stocks, bonds, real estate, commodities, and so on. Investors make two types of decisions in constructing their portfolios. The **asset allocation** decision is the choice among these broad asset classes, while the **security selection** decision is the choice of which particular securities to hold *within* each asset class.

“Top-down” portfolio construction starts with asset allocation. For example, an individual who currently holds all of his money in a bank account would first decide what proportion of the overall portfolio ought to be moved into stocks, bonds, and so on. In this way, the broad features of the portfolio are established. For example, while the average annual return on the common stock of large firms since 1926 has been about 12% per year, the average return on U.S. Treasury bills has been less than 4%. On the other hand, stocks are far riskier, with annual returns (as measured by the Standard & Poor's 500 index) that have ranged as low as -46% and as high as 55%. In contrast, T-bills are effectively risk-free: you know what interest rate you will earn when you buy them. Therefore, the decision to allocate your investments to the stock market or to the money market where Treasury bills are traded will have great ramifications for both the risk and the return of your portfolio. A top-down investor first makes this and other crucial asset allocation decisions before turning to the decision of the particular securities to be held in each asset class.

Security analysis involves the valuation of particular securities that might be included in the portfolio. For example, an investor might ask whether Merck or Pfizer is more attractively priced. Both bonds and stocks must be evaluated for investment attractiveness, but valuation is far more difficult for stocks because a stock's performance usually is far more sensitive to the condition of the issuing firm.

In contrast to top-down portfolio management is the “bottom-up” strategy. In this process, the portfolio is constructed from the securities that seem attractively priced without

as much concern for the resultant asset allocation. Such a technique can result in unintended bets on one or another sector of the economy. For example, it might turn out that the portfolio ends up with a very heavy representation of firms in one industry, from one part of the country, or with exposure to one source of uncertainty. However, a bottom-up strategy does focus the portfolio on the assets that seem to offer the most attractive investment opportunities.

1.5 MARKETS ARE COMPETITIVE

Financial markets are highly competitive. Thousands of intelligent and well-backed analysts constantly scour securities markets searching for the best buys. This competition means that we should expect to find few, if any, “free lunches,” securities that are so underpriced that they represent obvious bargains. There are several implications of this no-free-lunch proposition. Let’s examine two.

The Risk–Return Trade-Off

Investors invest for anticipated future returns, but those returns rarely can be predicted precisely. There will almost always be risk associated with investments. Actual or realized returns will almost always deviate from the expected return anticipated at the start of the investment period. For example, in 1931 (the worst calendar year for the market since 1926), the S&P 500 index fell by 46%. In 1933 (the best year), the index gained 55%. You can be sure that investors did not anticipate such extreme performance at the start of either of these years.

Naturally, if all else could be held equal, investors would prefer investments with the highest expected return.⁵ However, the no-free-lunch rule tells us that all else cannot be held equal. If you want higher expected returns, you will have to pay a price in terms of accepting higher investment risk. If higher expected return can be achieved without bearing extra risk, there will be a rush to buy the high-return assets, with the result that their prices will be driven up. Individuals considering investing in the asset at the now-higher price will find the investment less attractive: If you buy at a higher price, your expected rate of return (that is, profit per dollar invested) is lower. The asset will be considered attractive and its price will continue to rise until its expected return is no more than commensurate with risk. At this point, investors can anticipate a “fair” return relative to the asset’s risk, but no more. Similarly, if returns were independent of risk, there would be a rush to sell high-risk assets. Their prices would fall (and their expected future rates of return rise) until they eventually were attractive enough to be included again in investor portfolios. We conclude that there should be a **risk–return trade-off** in the securities markets, with higher-risk assets priced to offer higher expected returns than lower-risk assets.

Of course, this discussion leaves several important questions unanswered. How should one measure the risk of an asset? What should be the quantitative trade-off between risk (properly measured) and expected return? One would think that risk would have something to do with the volatility of an asset’s returns, but this guess turns out to be only partly correct. When we mix assets into diversified portfolios, we need to consider the interplay among assets and the effect of diversification on the risk of the entire portfolio.

⁵The “expected” return is not the return investors believe they necessarily will earn, or even their most likely return. It is instead the result of averaging across all possible outcomes, recognizing that some outcomes are more likely than others. It is the average rate of return across possible economic scenarios.

Diversification means that many assets are held in the portfolio so that the exposure to any particular asset is limited. The effect of diversification on portfolio risk, the implications for the proper measurement of risk, and the risk–return relationship are the topics of Part Two. These topics are the subject of what has come to be known as *modern portfolio theory*. The development of this theory brought two of its pioneers, Harry Markowitz and William Sharpe, Nobel Prizes.

Efficient Markets

Another implication of the no-free-lunch proposition is that we should rarely expect to find bargains in the security markets. We will spend all of Chapter 11 examining the theory and evidence concerning the hypothesis that financial markets process all relevant information about securities quickly and efficiently, that is, that the security price usually reflects all the information available to investors concerning the value of the security. According to this hypothesis, as new information about a security becomes available, the price of the security quickly adjusts so that at any time, the security price equals the market consensus estimate of the value of the security. If this were so, there would be neither underpriced nor overpriced securities.

One interesting implication of this “efficient market hypothesis” concerns the choice between active and passive investment-management strategies. **Passive management** calls for holding highly diversified portfolios without spending effort or other resources attempting to improve investment performance through security analysis. **Active management** is the attempt to improve performance either by identifying mispriced securities or by timing the performance of broad asset classes—for example, increasing one’s commitment to stocks when one is bullish on the stock market. If markets are efficient and prices reflect all relevant information, perhaps it is better to follow passive strategies instead of spending resources in a futile attempt to outguess your competitors in the financial markets.

If the efficient market hypothesis were taken to the extreme, there would be no point in active security analysis; only fools would commit resources to actively analyze securities. Without ongoing security analysis, however, prices eventually would depart from “correct” values, creating new incentives for experts to move in. Therefore, even in environments as competitive as the financial markets, we may observe only *near*-efficiency, and profit opportunities may exist for especially diligent and creative investors. In Chapter 12, we examine such challenges to the efficient market hypothesis, and this motivates our discussion of active portfolio management in Part Seven. More importantly, our discussions of security analysis and portfolio construction generally must account for the likelihood of nearly efficient markets.

1.6 THE PLAYERS

From a bird’s-eye view, there would appear to be three major players in the financial markets:

1. Firms are net borrowers. They raise capital now to pay for investments in plant and equipment. The income generated by those real assets provides the returns to investors who purchase the securities issued by the firm.
2. Households typically are net savers. They purchase the securities issued by firms that need to raise funds.
3. Governments can be borrowers or lenders, depending on the relationship between tax revenue and government expenditures. Since World War II, the U.S.

government typically has run budget deficits, meaning that its tax receipts have been less than its expenditures. The government, therefore, has had to borrow funds to cover its budget deficit. Issuance of Treasury bills, notes, and bonds is the major way that the government borrows funds from the public. In contrast, in the latter part of the 1990s, the government enjoyed a budget surplus and was able to retire some outstanding debt.

Corporations and governments do not sell all or even most of their securities directly to individuals. For example, about half of all stock is held by large financial institutions such as pension funds, mutual funds, insurance companies, and banks. These financial institutions stand between the security issuer (the firm) and the ultimate owner of the security (the individual investor). For this reason, they are called *financial intermediaries*. Similarly, corporations do not market their own securities to the public. Instead, they hire agents, called investment bankers, to represent them to the investing public. Let's examine the roles of these intermediaries.

Financial Intermediaries

Households want desirable investments for their savings, yet the small (financial) size of most households makes direct investment difficult. A small investor seeking to lend money to businesses that need to finance investments doesn't advertise in the local newspaper to find a willing and desirable borrower. Moreover, an individual lender would not be able to diversify across borrowers to reduce risk. Finally, an individual lender is not equipped to assess and monitor the credit risk of borrowers.

For these reasons, **financial intermediaries** have evolved to bring lenders and borrowers together. These financial intermediaries include banks, investment companies, insurance companies, and credit unions. Financial intermediaries issue their own securities to raise funds to purchase the securities of other corporations.

For example, a bank raises funds by borrowing (taking deposits) and lending that money to other borrowers. The spread between the interest rates paid to depositors and the rates charged to borrowers is the source of the bank's profit. In this way, lenders and borrowers do not need to contact each other directly. Instead, each goes to the bank, which acts as an intermediary between the two. The problem of matching lenders with borrowers is solved when each comes independently to the common intermediary.

Financial intermediaries are distinguished from other businesses in that both their assets and their liabilities are overwhelmingly financial. Table 1.3 presents the aggregated balance sheet of commercial banks, one of the largest sectors of financial intermediaries. Notice that the balance sheet includes only very small amounts of real assets. Compare Table 1.3 to the aggregated balance sheet of the nonfinancial corporate sector in Table 1.4 for which real assets are about half of all assets. The contrast arises because intermediaries simply move funds from one sector to another. In fact, the primary social function of such intermediaries is to channel household savings to the business sector.

Other examples of financial intermediaries are investment companies, insurance companies, and credit unions. All these firms offer similar advantages in their intermediary role. First, by pooling the resources of many small investors, they are able to lend considerable sums to large borrowers. Second, by lending to many borrowers, intermediaries achieve significant diversification, so they can accept loans that individually might be too risky. Third, intermediaries build expertise through the volume of business they do and can use economies of scale and scope to assess and monitor risk.

Investment companies, which pool and manage the money of many investors, also arise out of economies of scale. Here, the problem is that most household portfolios are not large enough to be spread among a wide variety of securities. It is very expensive in terms

Assets	\$ Billion	% Total	Liabilities and Net Worth	\$ Billion	% Total
Real assets			Liabilities		
Equipment and premises	\$ 100.7	1.0%	Deposits	\$ 6,865.3	65.9%
Other real estate	6.8	0.1	Borrowed funds	1,242.5	11.9
<i>Total real assets</i>	<u>\$ 107.5</u>	<u>1.0%</u>	Subordinated debt	161.3	1.5
			Federal funds and repurchase agreements	771.4	7.4
			Other	320.8	3.1
			<i>Total liabilities</i>	<u>\$ 9,361.3</u>	<u>89.9%</u>
Financial assets					
Cash	\$ 457.5	4.4%			
Investment securities	2,180.0	20.9			
Loans and leases	6,089.3	58.5			
Other financial assets	822.3	7.9			
<i>Total financial assets</i>	<u>\$ 9,549.1</u>	<u>91.7%</u>			
Other assets					
Intangible assets	\$ 379.2	3.6%			
Other	375.1	3.6			
<i>Total other assets</i>	<u>\$ 754.3</u>	<u>7.2%</u>	<i>Net worth</i>	<u>\$ 1,049.6</u>	<u>10.1%</u>
<i>Total</i>	<u>\$ 10,410.9</u>	<u>100.0%</u>		<u>\$10,410.9</u>	<u>100.0%</u>

TABLE 1.3**Balance sheet of commercial banks, 2007**

Note: Column sums may differ from total because of rounding error.

Source: Federal Deposit Insurance Corporation, www.fdic.gov, September 2007.

Assets	\$ Billion	% Total	Liabilities and Net Worth	\$ Billion	% Total
Real assets			Liabilities		
Equipment and software	\$ 3,764	15.0%	Bonds and mortgages	\$ 4,397	17.5%
Real estate	7,861	31.2	Bank loans	707	2.8
Inventories	1,671	6.6	Other loans	745	3.0
<i>Total real assets</i>	<u>\$13,295</u>	<u>52.8%</u>	Trade debt	1,651	6.6
			Other	3,319	13.2
			<i>Total liabilities</i>	<u>\$10,818</u>	<u>43.0%</u>
Financial assets					
Deposits and cash	\$ 608	2.4%			
Marketable securities	953	3.8			
Trade and consumer credit	2,200	8.7			
Other	8,108	32.2			
<i>Total financial assets</i>	<u>\$11,868</u>	<u>47.2%</u>			
<i>Total</i>	<u>\$25,164</u>	<u>100.0%</u>	<i>Net worth</i>	<u>\$14,346</u>	<u>57.0%</u>
				<u>\$25,164</u>	<u>100.0%</u>

TABLE 1.4**Balance sheet of nonfinancial U.S. business, 2007**

Note: Column sums may differ from total because of rounding error.

Source: *Flow of Funds Accounts of the United States*, Board of Governors of the Federal Reserve System, June 2007.

of brokerage fees and research costs to purchase one or two shares of many different firms. Mutual funds have the advantage of large-scale trading and portfolio management, while participating investors are assigned a prorated share of the total funds according to the size of their investment. This system gives small investors advantages they are willing to pay for via a management fee to the mutual fund operator.

Investment companies also can design portfolios specifically for large investors with particular goals. In contrast, mutual funds are sold in the retail market, and their investment philosophies are differentiated mainly by strategies that are likely to attract a large number of clients.

Economies of scale also explain the proliferation of analytic services available to investors. Newsletters, databases, and brokerage house research services all engage in research to be sold to a large client base. This setup arises naturally. Investors clearly want information, but with small portfolios to manage, they do not find it economical to personally gather all of it. Hence, a profit opportunity emerges: A firm can perform this service for many clients and charge for it.

CONCEPT
CHECK
2

Computer networks have made it much cheaper and easier for small investors to trade for their own accounts and perform their own security analysis. What will be the likely effect on financial intermediation?

Investment Bankers

Just as economies of scale and specialization create profit opportunities for financial intermediaries, so do these economies create niches for firms that perform specialized services for businesses. Firms raise much of their capital by selling securities such as stocks and bonds to the public. Because these firms do not do so frequently, however, investment banking firms that specialize in such activities can offer their services at a cost below that of maintaining an in-house security issuance division.

Investment bankers such as Goldman, Sachs or Merrill Lynch or Citigroup advise the issuing corporation on the prices it can charge for the securities issued, appropriate interest rates, and so forth. Ultimately, the investment banking firm handles the marketing of the security in the **primary market**, where new issues of securities are offered to the public. Later, investors can trade previously issued securities among themselves in the so-called **secondary market**.

Investment bankers can provide more than just expertise to security issuers. Because investment bankers are constantly in the market, assisting one firm or another in issuing securities, it is in their own interest to protect and maintain their reputation for honesty. Their investment in reputation is another type of scale economy that arises from frequent participation in the capital markets. An investment banker will suffer along with investors if the securities it underwrites are marketed to the public with overly optimistic or exaggerated claims; the public will not be so trusting the next time that investment banker participates in a security sale. As we have seen, this lesson was relearned with considerable pain in the boom years of the late 1990s and the subsequent high-tech crash of 2000–2002. Too many investment bankers got caught up in the flood of money that could be made by pushing stock issues to an overly eager public. The failure of many of these offerings soured the public on both the stock market and the firms managing the IPOs. At least some on Wall Street recognized that they had squandered a valuable asset—reputational capital—and that the conflicts of interest that engendered these deals were not only wrong but bad for business as well. An investment banker's effectiveness and ability to command future business depend on the reputation it has established over time.

1.7 RECENT TRENDS

Four important trends have changed the contemporary investment environment: (1) globalization, (2) securitization, (3) financial engineering, and (4) information and computer networks.

Globalization

If a wider range of investment choices can benefit investors, why should we limit ourselves to purely domestic assets? Increasingly efficient communication technology and the dismantling of regulatory constraints have encouraged **globalization** in recent years.


U.S. investors commonly can participate in foreign investment opportunities in several ways: (1) purchase foreign securities using American Depository Receipts (ADRs), which are domestically traded securities that represent claims to shares of foreign stocks; (2) purchase foreign securities that are offered in dollars; (3) buy mutual funds that invest internationally; and (4) buy derivative securities with payoffs that depend on prices in foreign security markets.

Brokers who act as intermediaries for American Depository Receipts purchase an inventory of stock from some foreign issuer. The broker then issues an American Depository Receipt that represents a claim to some number of those foreign shares held in inventory. The ADR is denominated in dollars and can be traded on U.S. stock exchanges but is in essence no more than a claim on a foreign stock. Thus, from the investor's point of view, there is no more difference between buying a British versus a U.S. stock than there is in holding a Massachusetts-based company compared with a California-based one. Of course, the investment implication may differ: ADRs still expose investors to exchange-rate risk.

Exchange-traded funds, or ETFs, are a variation on ADRs. ETFs also use a depository structure but buy entire portfolios of stocks. While ETFs may specialize in sectors as diverse as commodities or individual industries, others buy shares of firms of one particular country. These funds thus enable U.S. investors to obtain and trade diversified portfolios of foreign stocks in one fell swoop. Popular ETF brands are iShares (marketed by Barclays) or WEBS (World Equity Benchmark Shares), which are designed to replicate the investment performance of Morgan Stanley Capital International (MSCI) country indexes.

A giant step toward globalization took place in 1999 when 11 European countries replaced their existing currencies with a new currency called the *euro*.⁶ The idea behind the euro is that a common currency will facilitate trade and encourage integration of markets across national boundaries. Figure 1.1 is an announcement of a debt offering in

This announcement appears as a matter of record only. March, 1999



North West Water Finance PLC

EURO 500,000,000

4.875% Notes due 2009

guaranteed by
North West Water Limited
issued pursuant to the
United Utilities PLC, NORWEB PLC and North West Water Finance PLC
U.S. \$2,000,000,000
Euro Medium Term Note Programme

Joint Lead Managers

ABN AMRO J.P. Morgan Securities Ltd.

Co-Lead Managers

Banque Nationale de Paris S.A. Barclays Capital
Credit Suisse First Boston Deutsche Bank
ING Barings/BBL Warburg Dillon Read

Co-Managers

Dresdner Kleinwort Benson Greenwich NatWest
HypoVereinsbank Salomon Smith Barney
Tokyo-Mitsubishi International plc






FIGURE 1.1 Globalization: A debt issue denominated in euros

Source: North West Water Finance PLC, April 1999.

⁶The 11 countries are Belgium, Germany, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, and Finland. Greece and Slovenia later adopted the common currency. Several other countries, primarily in middle and eastern Europe, have joined the European Union and are likely to adopt the euro in the next few years.

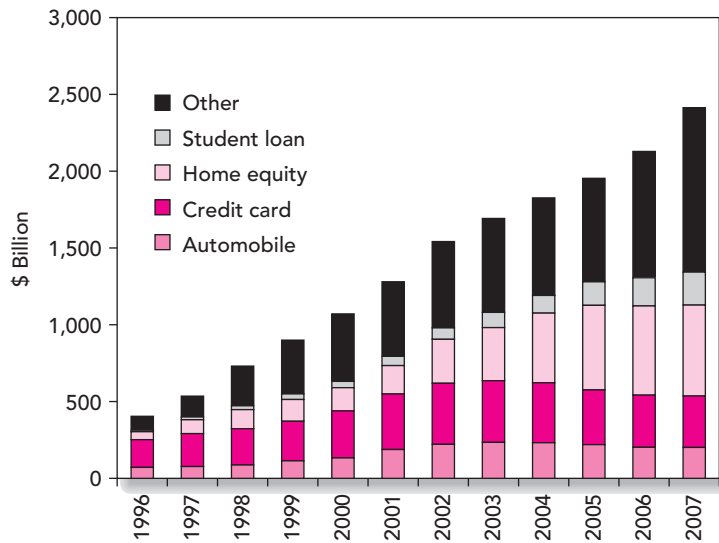


FIGURE 1.2 Asset-backed securities outstanding

Source: The Securities Industry and Financial Markets Association, www.sifma.com.

the amount of 500 million euros. (In early 2008, the euro was worth about \$1.45; the symbol for the euro is €.)

Securitization

In 1970, mortgage **pass-through securities** were introduced by the Government National Mortgage Association (GNMA, or Ginnie Mae). These securities aggregate individual home mortgages into relatively homogeneous pools. Each pool acts as backing for a GNMA pass-through security. Investors who buy GNMA securities receive prorated shares of all the principal and interest payments made on the underlying mortgage pool.

For example, the pool might total \$100 million of 8%, 30-year conventional mortgages. The banks that originated the mortgages continue to service them (receiving fee-for-

service), but they no longer own the mortgage investment; they pass the cash flows from the underlying mortgages through to the GNMA security holders.

Pass-through securities represented a tremendous innovation in mortgage markets. The **securitization** of mortgages means mortgages can be traded just like other securities. Availability of funds to homebuyers no longer depends on local credit conditions and is no longer subject to local banks' potential monopoly powers; with mortgage pass-throughs trading in national markets, mortgage funds can flow from any region (literally worldwide) to wherever demand is greatest.

Securitization also expands the menu of choices for the investor. Whereas it would have been impossible before 1970 for investors to invest in mortgages directly, they now can purchase mortgage pass-through securities or invest in mutual funds that offer portfolios of such securities.

Today, the majority of home mortgages are pooled into mortgage-backed securities. The two biggest players in the market are the Federal National Mortgage Association (FNMA, or Fannie Mae) and the Federal Home Loan Mortgage Corporation (FHLMC, or Freddie Mac). Over \$3.5 trillion of mortgage-backed securities are outstanding, making this market larger than the market for corporate bonds.

Other loans that have been securitized into pass-through arrangements include car loans, student loans, home equity loans, credit card loans, and debts of firms. Figure 1.2 documents the rapid growth of nonmortgage asset-backed securities since 1996.

CONCEPT CHECK

3

When mortgages are pooled into securities, the pass-through agencies (Freddie Mac and Fannie Mae) typically guarantee the underlying mortgage loans. If the homeowner defaults on the loan, the pass-through agency makes good on the loan; the investor in the mortgage-backed security does not bear the credit risk. Why does the allocation of risk to the pass-through agency rather than the security holder make economic sense?

Financial Engineering

Financial engineering is the use of mathematical models and computer-based trading technology to synthesize new financial products. A good example of a financially engineered investment product is the *principal-protected equity-linked note*. These are securities issued by financial intermediaries that guarantee a minimum fixed return plus an additional amount that depends on the performance of some specified stock index, such as the S&P 500.

Financial engineering often involves **unbundling** securities—breaking up and allocating the cash flows from one security to create several new securities—or **bundling**—combining more than one security into a composite security. Such creative engineering of new investment products allows one to design securities with custom-tailored risk attributes. An example of bundling appears in Figure 1.3.

Boise Cascade, with the assistance of Goldman, Sachs and other underwriters, has issued a hybrid security with features of preferred stock combined with various call and put option contracts. The security is structured as preferred stock for 4 years, at which time it is converted into common stock of the company. However, the number of shares of common stock into which the security can be converted depends on the price of the stock in 4 years, which means that the security holders are exposed to risk similar to the risk they would bear if they held option positions on the firm.

Often, creating a security that appears to be attractive requires the unbundling of an asset. An example is given in Figure 1.4. There, a mortgage pass-through certificate is

\$172,500,000

Boise Cascade Corporation

**7.50% Adjustable Conversion-rate
Equity Security Unit**

Price \$50 Per Unit

Upon request, a copy of the Prospectus Supplement and the related Prospectus describing these securities and the business of the Company may be obtained within any State from the Underwriter who may legally distribute it within such State. The securities are offered only by means of the Prospectus Supplement and the related Prospectus and this announcement is neither an offer to sell nor a solicitation of any offer to buy.

Goldman, Sachs & Co.
ABN AMRO Rothschild LLC
Banc of America Securities LLC
JPMorgan
Wachovia Securities

December 19, 2001

FIGURE 1.3 Bundling creates a complex security

Source: *The Wall Street Journal*, December 19, 2001.

This announcement appears as a matter of record only.

\$200,000,000*

Federal National Mortgage Association

FannieMae

Stripped Mortgage-Backed Securities

**Principal and Interest payable on the 25th day of
each month, commencing August 25, 1987**

SMBS Trust 20-CL—Fixed-Rate Residential Mortgage Loans

SMBS Class 1: 100% of Principal Payments on Underlying
9½% Fannie Mae Guaranteed Mortgage Pass-Through Certificates

SMBS Class 2: 100% of Interest Payments on Underlying
9½% Fannie Mae Guaranteed Mortgage Pass-Through Certificates

The obligations of Fannie Mae under its guaranty of the SMBS Certificates are obligations of Fannie Mae and are not backed by the full faith and credit of the United States. The SMBS Certificates are exempt from the registration requirements of the Securities Act of 1933 and are "Exempted Securities" within the meaning of the Securities Exchange Act of 1934.

Class 1 \$200,000,000 Principal Amount*
Class 2 \$200,000,000 Notional Principal Amount*

Goldman, Sachs & Co.

July 9, 1987 *Approximate

FIGURE 1.4 Unbundling of mortgages into principal- and interest-only securities

Source: Copyright March 1985 by Goldman, Sachs & Co. Published by Goldman, Sachs & Co., March 1985. Reprinted by permission.

unbundled into classes. Class 1 receives only principal payments from the mortgage pool, whereas Class 2 receives only interest payments.

Computer Networks

The Internet and other advances in computer networking have transformed many sectors of the economy, and few more so than the financial sector. These advances will be treated in greater detail in Chapter 3, but for now we can mention a few important innovations: online trading, online information dissemination, and automated trade crossing.

Online trading connects a customer directly to a brokerage firm. Online brokerage firms can process trades more cheaply and therefore can charge lower commissions. The average commission for an online trade is below \$20, compared to more than \$100 at full-service brokers.

The Internet has also allowed vast amounts of information to be made cheaply and widely available to the public. Individual investors today can obtain data, investment tools, and even analyst reports that just a decade ago would have been available only to professionals.

Electronic communication networks that allow direct trading among investors have exploded in recent years. These networks allow members to post buy or sell orders and to have those orders automatically matched up or “crossed” with orders of other traders in the system without benefit of an intermediary such as a securities dealer.

1.8

OUTLINE OF THE TEXT

The text has seven parts, which are fairly independent and may be studied in a variety of sequences. Part One is an introduction to financial markets, instruments, and trading of securities. This part also describes the mutual fund industry.

Parts Two and Three contain the core of what has come to be known as “modern portfolio theory.” We start in Part Two with a general discussion of risk and return and the lessons of capital market history. We then focus more closely on how to describe investors’ risk preferences and progress to asset allocation, efficient diversification, and portfolio optimization.

In Part Three, we investigate the implications of portfolio theory for the equilibrium relationship between risk and return. We introduce the capital asset pricing model, its implementation using index models, and more advanced models of risk and return. This part also treats the efficient market hypothesis as well as behavioral critiques of theories based on investor rationality and closes with a chapter on empirical evidence concerning security returns.

Parts Four through Six cover security analysis and valuation. Part Four is devoted to debt markets and Part Five to equity markets. Part Six covers derivative assets, such as options and futures contracts.

Part Seven is an introduction to active investment management. It shows how different investors’ objectives and constraints can lead to a variety of investment policies. This part discusses the role of active management in nearly efficient markets and considers how one should evaluate the performance of managers who pursue active strategies. It also shows how the principles of portfolio construction can be extended to the international setting and examines the hedge fund industry.

1. Real assets create wealth. Financial assets represent claims to parts or all of that wealth. Financial assets determine how the ownership of real assets is distributed among investors.
2. Financial assets can be categorized as fixed income, equity, or derivative instruments. Top-down portfolio construction techniques start with the asset allocation decision—the allocation of funds across broad asset classes—and then progress to more specific security-selection decisions.
3. Competition in financial markets leads to a risk–return trade-off, in which securities that offer higher expected rates of return also impose greater risks on investors. The presence of risk, however, implies that actual returns can differ considerably from expected returns at the beginning of the investment period. Competition among security analysts also promotes financial markets that are nearly informationally efficient, meaning that prices reflect all available information concerning the value of the security. Passive investment strategies may make sense in nearly efficient markets.
4. Financial intermediaries pool investor funds and invest them. Their services are in demand because small investors cannot efficiently gather information, diversify, and monitor portfolios. The financial intermediary sells its own securities to the small investors. The intermediary invests the funds thus raised, uses the proceeds to pay back the small investors, and profits from the difference (the spread).
5. Investment banking brings efficiency to corporate fund-raising. Investment bankers develop expertise in pricing new issues and in marketing them to investors.
6. Recent trends in financial markets include globalization, securitization, financial engineering of assets, and growth of information and computer networks.

SUMMARY

Related Web sites for this chapter are available at www.mhhe.com/bkm

investment	security selection	primary market
real assets	security analysis	secondary market
financial assets	risk–return trade-off	globalization
fixed-income (debt) securities	passive management	pass-through securities
equity	active management	securitization
derivative securities	financial intermediaries	financial engineering
agency problem	investment companies	bundling
asset allocation	investment bankers	unbundling

KEY TERMS

1. Financial engineering has been disparaged as nothing more than paper shuffling. Critics argue that resources used for *rearranging* wealth (that is, bundling and unbundling financial assets) might be better spent on *creating* wealth (that is, creating real assets). Evaluate this criticism. Are any benefits realized by creating an array of derivative securities from various primary securities?
2. Why would you expect securitization to take place only in highly developed capital markets?
3. What is the relationship between securitization and the role of financial intermediaries in the economy? What happens to financial intermediaries as securitization progresses?
4. Although we stated that real assets comprise the true productive capacity of an economy, it is hard to conceive of a modern economy without well-developed financial markets and security types. How would the productive capacity of the U.S. economy be affected if there were no markets in which one could trade financial assets?
5. Firms raise capital from investors by issuing shares in the primary markets. Does this imply that corporate financial managers can ignore trading of previously issued shares in the secondary market?

PROBLEMS SETS

Quiz

Problems

6. Suppose you discover a treasure chest of \$10 billion in cash.
 - a. Is this a real or financial asset?
 - b. Is society any richer for the discovery?
 - c. Are you wealthier?
 - d. Can you reconcile your answers to (b) and (c)? Is anyone worse off as a result of the discovery?
7. Lanni Products is a start-up computer software development firm. It currently owns computer equipment worth \$30,000 and has cash on hand of \$20,000 contributed by Lanni's owners. For each of the following transactions, identify the real and/or financial assets that trade hands. Are any financial assets created or destroyed in the transaction?
 - a. Lanni takes out a bank loan. It receives \$50,000 in cash and signs a note promising to pay back the loan over 3 years.
 - b. Lanni uses the cash from the bank plus \$20,000 of its own funds to finance the development of new financial planning software.
 - c. Lanni sells the software product to Microsoft, which will market it to the public under the Microsoft name. Lanni accepts payment in the form of 1,500 shares of Microsoft stock.
 - d. Lanni sells the shares of stock for \$80 per share and uses part of the proceeds to pay off the bank loan.
8. Reconsider Lanni Products from Problem 7.
 - a. Prepare its balance sheet just after it gets the bank loan. What is the ratio of real assets to total assets?
 - b. Prepare the balance sheet after Lanni spends the \$70,000 to develop its software product. What is the ratio of real assets to total assets?
 - c. Prepare the balance sheet after Lanni accepts the payment of shares from Microsoft. What is the ratio of real assets to total assets?
9. Examine the balance sheet of commercial banks in Table 1.3. What is the ratio of real assets to total assets? What is that ratio for nonfinancial firms (Table 1.4)? Why should this difference be expected?

10. Consider Figure 1.5, which describes an issue of American gold certificates.
 - a. Is this issue a primary or secondary market transaction?
 - b. Are the certificates primitive or derivative assets?
 - c. What market niche is filled by this offering?
11. Discuss the advantages and disadvantages of the following forms of managerial compensation in terms of mitigating agency problems, that is, potential conflicts of interest between managers and shareholders.
 - a. A fixed salary.
 - b. Stock in the firm.
 - c. Call options on shares of the firm.
12. We noted that oversight by large institutional investors or creditors is one mechanism to reduce agency problems. Why don't individual investors in the firm have the same incentive to keep an eye on management?
13. Give an example of three financial intermediaries and explain how they act as a bridge between small investors and large capital markets or corporations.
14. The average rate of return on investments in large stocks has outpaced that on investments in Treasury bills by about 8% since 1926. Why, then, does anyone invest in Treasury bills?
15. What are some advantages and disadvantages of top-down versus bottom-up investing styles?

This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these Certificates. This offer is made only by the Offering Memorandum.

NEW ISSUE **\$100,000,000** July 7, 1987

**AMERICAN
GOLD
CERTIFICATES**

Due July 1, 1991

- American Gold Certificates represent physical allocated gold bullion insured and held in safekeeping at Bank of Delaware.
- Anytime during the four-year period, the certificate holder may request physical delivery of the gold.

Copies of the Offering Memorandum may be obtained in any State from only such of the undersigned as may legally offer these certificates in such State.

J. W. KORTH CAPITAL MARKETS, INC.

THE CHICAGO CORPORATION	COWEN & CO.	DOMINICK & DOMINICK INCORPORATED
FIRST ALBANY CORPORATION	GRIFFIN, KUBIK, STEPHENS & THOMPSON, INC.	
INTERSTATE SECURITIES CORPORATION	JANNEY MONTGOMERY SCOTT INC.	
MCDONALD & COMPANY SECURITIES, INC.	PACIFIC SECURITIES, INC.	
RONEY & CO.	STEPHENS, INC.	UMIC, INC.
VINING-SPARRS SECURITIES, INC.		WESTCAP SECURITIES, INC.
BARKER, WATTS & CO.		BARCLAY INVESTMENTS, INC.
BIRR, WILSON SECURITIES, INC.		D. A. DAVIDSON & CO. INCORPORATED
INDEPENDENCE SECURITIES, INC.	JESUP & LAMONT SECURITIES CO., INC.	
EMMETT A. LARKIN CO., INC.	SCOTT & STRINGFELLOW, INC.	
SEDLER AMDEC SECURITIES INC.	UNDERWOOD, NUTHAUS & CO. INCORPORATED	

FIGURE 1.5 A gold-backed security

16. You see an advertisement for a book that claims to show how you can make \$1 million with no risk and with no money down. Will you buy the book?
17. Below is an excerpt from the investor education Web site of the SEC.
 - a. How does the excerpt define the difference between saving and investing?
 - b. In what ways does this differ from the economist's definition given in this chapter?

Your "savings" are usually put into the safest places or products that allow you access to your money at any time. Examples include savings accounts, checking accounts, and certificates of deposit. At some banks and savings and loan associations your deposits may be insured by the Federal Deposit Insurance Corporation (FDIC). But there's a tradeoff for getting that security and ready availability. Your money is paid a low wage as it works for you.

When you "invest," you have a greater chance of losing your money than when you "save." Unlike FDIC-insured deposits, the money you invest in securities, mutual funds, and other similar investments are not federally insured. You could lose your "principal," which is the amount you've invested. That's true even if you purchase your investments through a bank. But when you invest, you also have the opportunity to earn more money than when you save.

18. Here is another quote on savings and investment from the Securities Industry Association (www.pathtoinvesting.org). Critique and correct this statement in light of the definitions of saving and investment contained in the chapter.

Saving and investing aren't the same—although they both play a role in your financial plan. While they both involve setting aside some of your income for the future, saving often refers to putting money in the bank—in savings and money market accounts—while investing means buying stocks, bonds, mutual funds, or other uninsured assets . . . While investing can help you achieve your long-term goals, saving is an effective way of managing your money to meet short-term needs and to provide a safety net for emergency expenses.

1. Go to the Market Insight Web site at www.mhhe.com/edumarketinsight. Select the *Company* tab and enter ticker symbol WB. Click on *Company Profile* in the Compustat Reports section. What kind of firm is Wachovia?
2. In the EDGAR section, locate Wachovia's most recent balance sheet. This may be annual (10-K) or quarterly (10-Q). When you click on the link, the entire filing will appear. Scroll down until you find the Balance Sheet.
3. Calculate the common-size percentage for Wachovia's net worth, which equals total stockholders' equity divided by total assets. How does this percentage compare to the net worth of commercial banks from Table 1.3 in the text? Repeat the process for Bank of America (BAC) and US Bancorp (USB) and compare your answers.

STANDARD
& POOR'S

E-Investments

Market Regulators

1. Go to the Securities and Exchange Commission Web site, www.sec.gov. What is the mission of the SEC? What information and advice does the SEC offer to beginning investors?
2. Go to the NASD Web site, www.nasd.com. What is its mission? What information and advice does it offer to beginners?
3. Go to the IOSCO Web site, www.iosco.org. What is its mission? What information and advice does it offer to beginners?

SOLUTIONS TO CONCEPT CHECKS

1.
 - a. Real
 - b. Financial
 - c. Real
 - d. Real
 - e. Financial
2. If the new technology enables investors to trade and perform research for themselves, the need for financial intermediaries will decline. Part of the service intermediaries now offer is a lower-cost method for individuals to participate in securities markets. This part of the intermediaries' service would be less sought after.
3. The pass-through agencies are far better equipped to evaluate the credit risk associated with the pool of mortgages. They are constantly in the market, have ongoing relationships with the originators of the loans, and find it economical to set up "quality control" departments to monitor the credit risk of the mortgage pools. Therefore, the pass-through agencies are better able to incur the risk; they charge for this "service" via a "guarantee fee." Investors might not find it worthwhile to purchase these securities if they must assess the credit risk of these loans for themselves. It is far cheaper for them to allow the agencies to collect the guarantee fee.