2 An Overview of the Financial System

Learning Objectives

- Compare and contrast direct and indirect finance.
- Identify the structure and components of financial markets.
- List and describe the different types of financial market instruments.
- Recognize the international dimensions of financial markets.
- Summarize the roles of transaction costs, risk sharing, and information costs as they relate to financial intermediaries.
- List and describe the different types of financial intermediaries.
- Identify the reasons for and list the types of financial market regulations.

Preview

Inez the Inventor has designed a low-cost robot that cleans the house (even does the windows!), washes the car, and mows the lawn, but she has no funds to put her wonderful invention into production. Walter the Widower has plenty of savings, which he and his wife accumulated over the years. If Inez and Walter could get together so that Walter could provide funds to Inez, Inez's robot would see the light of day, and the economy would be better off: We would have cleaner houses, shinier cars, and more beautiful lawns.

Financial markets (bond and stock markets) and financial intermediaries (such as banks, insurance companies, and pension funds) serve the basic function of getting people like Inez and Walter together so that funds can move from those who have a surplus of funds (Walter) to those who have a shortage of funds (Inez). More realistically, when Apple invents a better iPod, it may need funds to bring its new product to market. Similarly, when a local government needs to build a road or a school, it may require more funds than local property taxes provide. Well-functioning financial markets and financial intermediaries are crucial to economic health.

To study the effects of financial markets and financial intermediaries on the economy, we need to acquire an understanding of their general structure and operation. In this chapter, we learn about the major financial intermediaries and the instruments that are traded in financial markets, as well as how these markets are regulated.

This chapter presents an overview of the fascinating study of financial markets and institutions. We return to a more detailed treatment of the regulation, structure, and evolution of the financial system in Chapters 8 through 12.

FUNCTION OF FINANCIAL MARKETS

Financial markets perform the essential economic function of channeling funds from households, firms, and governments that have saved surplus funds by spending less than their income to those that have a shortage of funds because they wish to spend more than their income. This function is shown schematically in Figure 1. Those who have saved and are lending funds, the lender-savers, are at the left, and those who must borrow funds to finance their spending, the borrower-spenders, are at the right. The

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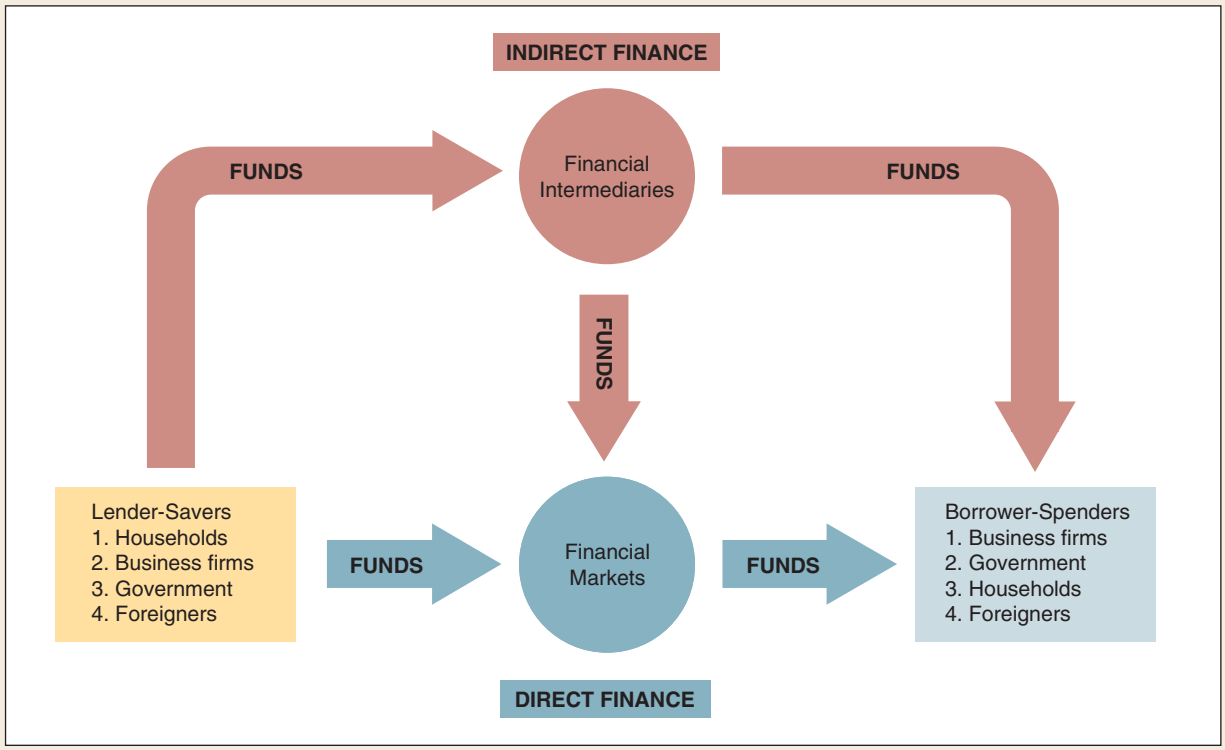

FIGURE 1 **Flows of Funds Through the Financial System**

The arrows show that funds flow from lender-savers to borrower-spenders via two routes: *direct finance,* in which borrowers borrow funds directly from financial markets by selling securities, and *indirect finance,* in which a financial intermediary borrows funds from lender-savers and then uses these funds to make loans to borrower-spenders.

principal lender-savers are households, but business enterprises and the government (particularly state and local government), as well as foreigners and their governments, sometimes also find themselves with excess funds and so lend them out. The most important borrower-spenders are businesses and the government (particularly the federal government), but households and foreigners also borrow to finance their purchases of cars, furniture, and houses. The arrows show that funds flow from lender-savers to borrower-spenders via two routes.

In *direct finance* (the route at the bottom of Figure 1), borrowers borrow funds directly from lenders in financial markets by selling the lenders *securities* (also called *financial instruments*), which are claims on the borrower's future income or assets. Securities are assets for the person who buys them but **liabilities** (IOUs or debts) for the individual or firm that sells (issues) them. For example, if Ford needs to borrow funds to pay for a new factory to manufacture electric cars, it might borrow the funds from savers by selling them a *bond*, a debt security that promises to make periodic payments for a specified period of time, or a *stock*, a security that entitles the owner to a share of the company's profits and assets.

Why is this channeling of funds from savers to spenders so important to the economy? The answer is that the people who save are frequently not the same people who have profitable investment opportunities available to them, the entrepreneurs. Let's first think about this on a personal level. Suppose that you have saved $1,000 this year, but no borrowing or lending is possible because no financial markets are available. If you do not have an investment opportunity that will permit you to earn income with your savings, you will just hold on to the $1,000 and it will earn no interest. However, Carl the Carpenter has a productive use for your $1,000: He can use it to purchase a new tool that will shorten the time it takes him to build a house, thereby earning an extra $200 per year. If you could get in touch with Carl, you could lend him the $1,000 at a rental fee (interest) of $100 per year, and both of you would be better off. You would earn $100 per year on your $1,000, instead of the zero amount that you would earn otherwise, while Carl would earn $100 more income per year (the $200 extra earnings per year minus the $100 rental fee for the use of the funds).

In the absence of financial markets, you and Carl the Carpenter might never get together. You would both be stuck with the status quo, and both of you would be worse off. Without financial markets, it is hard to transfer funds from a person who has no investment opportunities to one who has them. Financial markets are thus essential to promoting economic efficiency.

The existence of financial markets is beneficial even if someone borrows for a purpose other than increasing production in a business. Say that you are recently married, have a good job, and want to buy a house. You earn a good salary, but because you have just started to work, you have not saved much. Over time, you would have no problem saving enough to buy the house of your dreams, but by then you would be too old to get full enjoyment from it. Without financial markets, you are stuck; you cannot buy the house and must continue to live in your tiny apartment.

If a financial market were set up so that people who had built up savings could lend you the funds to buy the house, you would be more than happy to pay them some interest so that you could own a home while you are still young enough to enjoy it. Then, over time, you would pay back your loan. If this loan could occur, you would be better off, as would the persons who made you the loan. They would now earn some interest, whereas they would not if the financial market did not exist.

Now we can see why financial markets have such an important function in the economy. They allow funds to move from people who lack productive investment opportunities to people who have such opportunities. Financial markets are critical for producing an efficient allocation of **capital** (wealth, either financial or physical, that is employed to produce more wealth), which contributes to higher production and efficiency for the overall economy. Indeed, as we will explore in Chapter 12, when financial markets break down during financial crises, as they did during the recent global financial crisis, severe economic hardship results, which can sometimes lead to dangerous political instability.

Well-functioning financial markets also directly improve the well-being of consumers by allowing them to time their purchases better. They provide funds to young people to buy what they need (and will eventually be able to afford) without forcing them to wait until they have saved up the entire purchase price. Financial markets that are operating efficiently improve the economic welfare of everyone in the society.

STRUCTURE OF FINANCIAL MARKETS

Now that we understand the basic function of financial markets, let's look at their structure. The following descriptions of several categories of financial markets illustrate essential features of these markets.

Debt and Equity Markets

A firm or an individual can obtain funds in a financial market in two ways. The most common method is through the issuance of a debt instrument, such as a bond or a mortgage, which is a contractual agreement by the borrower to pay the holder of the instrument fixed dollar amounts at regular intervals (interest and principal payments) until a specified date (the maturity date), when a final payment is made. The **maturity** of a debt instrument is the number of years (term) until that instrument's expiration date. A debt instrument is **short-term** if its maturity term is less than a year and **long-term** if its maturity term is ten years or longer. Debt instruments with a maturity term between one and ten years are said to be **intermediate-term**.

The second method of raising funds is through the issuance of **equities**, such as common stock, which are claims to share in the *net income* (income after expenses and taxes) and the assets of a business. If you own one share of common stock in a company that has issued one million shares, you are entitled to 1 one-millionth of the firm's net income and 1 one-millionth of the firm's assets. Equities often make periodic payments (**dividends**) to their holders and are considered long-term securities because they have no maturity date. In addition, owning stock means that you own a portion of the firm and thus have the right to vote on issues important to the firm and to elect its directors.

The main disadvantage of owning a corporation's equities rather than its debt is that an equity holder is a *residual claimant*; that is, the corporation must pay all its debt holders before it pays its equity holders. The advantage of holding equities is that equity holders benefit directly from any increases in the corporation's profitability or asset value because equities confer ownership rights on the equity holders. Debt holders do not share in this benefit, because their dollar payments are fixed. We examine the pros and cons of debt versus equity instruments in more detail in Chapter 8, which provides an economic analysis of financial structure.

The total value of equities in the United States has fluctuated between $4 and $25 trillion since the early 1990s, depending on the prices of shares. Although the average person is more aware of the stock market than of any other financial market, the size of the debt market is often substantially larger than the size of the equities market: At the end of 2013, the value of debt instruments was $42 trillion, while the value of equities was $21.3 trillion.

Primary and Secondary Markets

A **primary market** is a financial market in which new issues of a security, such as a bond or a stock, are sold to initial buyers by the corporation or government agency borrowing the funds. A **secondary market** is a financial market in which securities that have been previously issued can be resold.

The primary markets for securities are not well known to the public because the selling of securities to initial buyers often takes place behind closed doors. An important financial institution that assists in the initial sale of securities in the primary market is

the **investment bank**. The investment bank does this by **underwriting** securities: It guarantees a price for a corporation's securities and then sells them to the public.

The New York Stock Exchange and NASDAQ (National Association of Securities Dealers Automated Quotation System), in which previously issued stocks are traded, are the best-known examples of secondary markets, although the bond markets, in which previously-issued bonds of major corporations and the U.S. government are bought and sold, actually have a larger trading volume. Other examples of secondary markets are foreign exchange markets, futures markets, and options markets. Securities brokers and dealers are crucial to a well-functioning secondary market. **Brokers** are agents of investors who match buyers with sellers of securities; **dealers** link buyers and sellers by buying and selling securities at stated prices.

When an individual buys a security in the secondary market, the person who has sold the security receives money in exchange for the security, but the corporation that issued the security acquires no new funds. A corporation acquires new funds only when its securities are first sold in the primary market. Nonetheless, secondary markets serve two important functions. First, they make it easier and quicker to sell these financial instruments to raise cash; that is, they make the financial instruments more **liquid**. The increased liquidity of these instruments then makes them more desirable and thus easier for the issuing firm to sell in the primary market. Second, secondary markets determine the price of the security that the issuing firm sells in the primary market. The investors who buy securities in the primary market will pay the issuing corporation no more than the price they think the secondary market will set for this security. The higher the security's price in the secondary market, the higher the price the issuing firm will receive for a new security in the primary market, and hence the greater the amount of financial capital it can raise. Conditions in the secondary market are therefore the most relevant to corporations issuing securities. For this reason, books like this one, which deal with financial markets, focus on the behavior of secondary markets rather than that of primary markets.

Exchanges and Over-the-Counter Markets

Secondary markets can be organized in two ways. One method is through **exchanges**, where buyers and sellers of securities (or their agents or brokers) meet in one central location to conduct trades. The New York Stock Exchange for stocks and the Chicago Board of Trade for commodities (wheat, corn, silver, and other raw materials) are examples of organized exchanges.

The other forum for a secondary market is an **over-the-counter (OTC) market**, in which dealers at different locations who have an inventory of securities stand ready to buy and sell securities "over the counter" to anyone who comes to them and is willing to accept their prices. Because over-the-counter dealers are in contact via computers and know the prices set by one another, the OTC market is very competitive and not very different from a market with an organized exchange.

Many common stocks are traded over-the-counter, although a majority of the largest corporations have their shares traded at organized stock exchanges. The U.S. government bond market, with a larger trading volume than the New York Stock Exchange, by contrast, is set up as an over-the-counter market. Forty or so dealers establish a "market" in these securities by standing ready to buy and sell U.S. government bonds. Other over-the-counter markets include those that trade other types of financial instruments, such as negotiable certificates of deposit, federal funds, and foreign exchange instruments.

Money and Capital Markets

Another way of distinguishing between markets is on the basis of the maturity of the securities traded in each market. The **money market** is a financial market in which only short-term debt instruments (generally those with original maturity terms of less than one year) are traded; the **capital market** is the market in which longer-term debt instruments (generally those with original maturity terms of one year or greater) and equity instruments are traded. Money market securities are usually more widely traded than longer-term securities and so tend to be more liquid. In addition, as we will see in Chapter 4, short-term securities have smaller fluctuations in prices than long-term securities, making them safer investments. As a result, corporations and banks actively use the money market to earn interest on surplus funds that they expect to have only temporarily. Capital market securities, such as stocks and long-term bonds, are often held by financial intermediaries such as insurance companies and pension funds, which have little uncertainty about the amount of funds they will have available in the future.

FINANCIAL MARKET INSTRUMENTS

To complete our understanding of how financial markets perform the important role of channeling funds from lender-savers to borrower-spenders, we need to examine the securities (instruments) traded in financial markets. We first focus on the instruments traded in the money market and then turn to those traded in the capital market.

Money Market Instruments

Because of their short terms to maturity, the debt instruments traded in the money market undergo the least price fluctuations and so are the least risky investments. The money market has undergone great changes in the past three decades, with the amounts of some financial instruments growing at a far more rapid rate than others.

The principal money market instruments are listed in Table 1, along with the amount at the end of 1980, 1990, 2000, and 2013. The Following the Financial News box discusses the money market interest rates most frequently reported in the media.

TABLE 1 Principal Money Market Instruments

	Amount ($ billions, end of year)			
Type of Instrument	**1980**	**1990**	**2000**	**2013**
U.S. Treasury bills	216	527	647	1,591
Negotiable bank certificates of deposit (large denominations)	317	543	1,053	1,762
Commercial paper	122	557	1,619	951
Federal funds and security repurchase agreements	64	388	768	1,919

Source: Federal Reserve Flow of Funds Accounts; http://www.federalreserve.gov

Following the Financial News Money Market Rates

The four money market interest rates discussed most frequently in the media are:

Prime rate: The base interest rate on corporate bank loans, an indicator of the cost of businesses borrowing from banks

Federal funds rate: The interest rate charged on overnight loans in the federal funds market, a sensitive indicator of the cost to banks of borrowing funds from other banks and the stance of monetary policy

Treasury bill rate: The interest rate on U.S. Treasury bills, an indicator of general interest-rate movements

Libor rate: The British Banker's Association average of interbank rates for dollar deposits in the London market

The data for these interest rates are reported daily in newspapers and on Internet sites such as http://www.bankrate.com.

U.S. Treasury Bills These short-term debt instruments of the U.S. government are issued in one-, three-, and six-month maturities to finance the federal government. They pay a set amount at maturity and have no interest payments, but they effectively pay interest by initially selling at a discount—that is, at a price lower than the set amount paid at maturity. For instance, in May 2016, you might buy a six-month Treasury bill for $9,000 that can be redeemed in November 2016 for $10,000.

U.S. Treasury bills are the most liquid of all money market instruments because they are the most actively traded. They are also the safest money market instrument because there is a low probability of **default**, a situation in which the party issuing the debt instrument (the federal government, in this case) is unable to make interest payments or pay off the amount owed when the instrument matures. The federal government can always meet its debt obligations because it can raise taxes or issue **currency** (paper money or coins) to pay off its debts. Treasury bills are held mainly by banks, although small amounts are held by households, corporations, and other financial intermediaries.

Negotiable Bank Certificates of Deposit A *certificate of deposit (CD)* is a debt instrument sold by a bank to depositors that pays annual interest of a given amount and at maturity pays back the original purchase price. Negotiable CDs are those sold in secondary markets, with the amount outstanding currently around $1.8 trillion. Negotiable CDs are an extremely important source of funds for commercial banks from corporations, money market mutual funds, charitable institutions, and government agencies.

Commercial Paper *Commercial paper* is a short-term debt instrument issued by large banks and well-known corporations, such as Microsoft and General Motors. Growth of the commercial paper market has been substantial: The amount of commercial paper outstanding has increased by over 700% (from $122 billion to $951 billion) in the period 1980–2013. We will discuss why the commercial paper market has had such tremendous growth in Chapter 11.

Repurchase Agreements *Repurchase agreements (repos)* are effectively short-term loans (usually with a maturity term of less than two weeks) for which Treasury bills serve as *collateral,* an asset that the lender receives if the borrower does not pay back the

loan. Repos are made as follows: A large corporation, such as Microsoft, may have some idle funds in its bank account, say $1 million, which it would like to lend for a week. Microsoft uses this excess $1 million to buy Treasury bills from a bank, which agrees to repurchase them the next week at a price slightly above Microsoft's purchase price. The net effect of this agreement is that Microsoft makes a loan of $1 million to the bank and holds $1 million of the bank's Treasury bills until the bank repurchases the bills to pay off the loan. Repurchase agreements are now an important source of bank funds (over $493 billion). The most important lenders in this market are large corporations.

Federal (Fed) Funds These instruments are typically overnight loans between banks of their deposits at the Federal Reserve. The *federal funds* designation is somewhat confusing because these loans are not made by the federal government or by the Federal Reserve but rather by banks to other banks. One reason why a bank might borrow in the federal funds market is that it might find it does not have enough funds in its deposit accounts at the Fed to meet the amount required by regulators. It can then borrow these funds from another bank, which transfers them to the borrowing bank using the Fed's wire transfer system. This market is very sensitive to the credit needs of the banks, so the interest rate on these loans, called the **federal funds rate**, is a closely watched barometer of the tightness of credit market conditions in the banking system and the stance of monetary policy. When high, the federal funds rate indicates that banks are strapped for funds; when low, it indicates that banks' credit needs are low.

Capital Market Instruments

Capital market instruments are debt and equity instruments with maturities of greater than one year. They have far wider price fluctuations than money market instruments and are considered to be fairly risky investments. The principal capital market instruments are listed in Table 2, which shows the amount at the end of 1980, 1990, 2000,

TABLE 2 Principal Capital Market Instruments

	Amount ($ billions, end of year)			
Type of Instrument	**1980**	**1990**	**2000**	**2013**
Corporate stocks (market value)	1,601	4,146	17,627	21,363
Residential mortgages	1,106	2,886	5,463	9,863
Corporate bonds	366	1,008	2,230	6,436
U.S. government securities (marketable long-term)	407	1,653	2,184	4,359
U.S. government agency securities	193	435	1,616	6,199
State and local government bonds	310	870	1,192	2,925
Bank commercial loans	459	818	1,091	1,175
Consumer loans	355	813	536	679
Commercial and farm mortgages	352	829	1,214	2,463

Source: Federal Reserve Flow of Funds Accounts; http://www.federalreserve.gov.

Following the Financial News Capital Market Interest Rates

The five interest rates on capital market instruments discussed most frequently in the media are:

30-year mortgage rate: The interest rate on a 30-year, fixed-rate residential mortgage that is less than $417,000 ($625,500 in high-cost areas) in amount and is guaranteed by the **Federal Housing Administration (FHA)**.

Jumbo mortgage rate: The interest rate on a 30-year, fixed-rate residential mortgage for prime customers that is in excess of $417,000 ($625,500 in high-cost areas) in amount.

Five-year adjustable rate mortgage (ARM) rate: The interest rate for the first five years on a residential mortgage that adjusts after five years for prime customers.

New-car loan rate: The interest rate on a four-year, fixed-rate new-car loan.

10-year Treasury rate: The interest rate on U.S. Treasury bonds maturing in ten years.

The data for these interest rates are reported daily in newspapers and on Internet sites such as http://www.bankrate.com and http://www.finance.yahoo.com.

and 2013. The Following the Financial News box discusses the capital market interest rates most frequently reported in the media.

Stocks

Stocks are equity claims on the net income and assets of a corporation. Their value of $21 trillion at the end of 2013 exceeds that of any other type of security in the capital market. However, the amount of new stock issues in any given year is typically quite small, less than 1% of the total value of shares outstanding. Individuals hold around half of the value of stocks; the rest is held by pension funds, mutual funds, and insurance companies.

Mortgages and Mortgage-Backed Securities

Mortgages are loans to households or firms to purchase land, housing, or other real structures, in which the structure or land itself serves as collateral for the loans. The mortgage market is the largest debt market in the United States, with the amount of residential mortgages (used to purchase residential housing) outstanding more than quadruple the amount of commercial and farm mortgages. Mortgages are provided by financial institutions such as savings and loan associations, mutual savings banks, commercial banks, and insurance companies. However, in recent years a growing amount of the funds for mortgages have been provided by **mortgage-backed securities**, bond-like debt instruments backed by a bundle of individual mortgages, whose interest and principal payments are collectively paid to the holders of the security. As we will see in Chapter 12, mortgage-backed securities and more complicated variants (CDOs) have become notorious because they played a key role in promoting the recent global financial crisis. The federal government plays an active role in the mortgage market via the three government agencies—the Federal National Mortgage Association (FNMA, "Fannie Mae"), the Government National Mortgage Association (GNMA, "Ginnie Mae"), and the Federal Home Loan Mortgage Corporation (FHLMC, "Freddie Mac")—that provide funds to the mortgage market by selling bonds and using the proceeds to buy mortgages.

Corporate Bonds These long-term bonds are issued by corporations with very strong credit ratings. The typical *corporate bond* sends the holder an interest payment twice a year and pays off the face value when the bond matures. Some corporate bonds, called *convertible bonds,* have the additional feature of allowing the holder to convert them into a specified number of shares of stock at any time up to the maturity date. This feature makes these convertible bonds more desirable to prospective purchasers than bonds without it, and it allows the corporation to reduce its interest payments because the bonds can increase in value if the price of the stock appreciates sufficiently. Because the outstanding amount of both convertible and nonconvertible bonds for any given corporation is small, corporate bonds are not nearly as liquid as other securities such as U.S. government bonds.

Although the size of the corporate bond market is substantially smaller than that of the stock market, with the amount of corporate bonds outstanding less than one-third that of stocks, the volume of new corporate bonds issued each year is substantially greater than the volume of new stock issues. Thus the behavior of the corporate bond market is probably far more important to a firm's financing decisions than is the behavior of the stock market. The principal buyers of corporate bonds are life insurance companies; pension funds and households are other large holders.

U.S. Government Securities These long-term debt instruments are issued by the U.S. Treasury to finance the deficits of the federal government. Because they are the most widely traded bonds in the United States (the volume of transactions on average exceeds $500 billion daily), they are the most liquid security traded in the capital market. They are held by the Federal Reserve, banks, households, and foreigners.

U.S. Government Agency Securities These long-term bonds are issued by various government agencies such as Ginnie Mae, the Federal Farm Credit Bank, and the Tennessee Valley Authority to finance such items as mortgages, farm loans, or power-generating equipment. Many of these securities are guaranteed by the federal government. They function much like U.S. government bonds and are held by similar parties.

State and Local Government Bonds State and local bonds, also called *municipal bonds,* are long-term debt instruments issued by state and local governments to finance expenditures on schools, roads, and other large programs. An important feature of these bonds is that their interest payments are exempt from federal income tax and generally from state taxes in the issuing state. Commercial banks, with their high income tax rates, are the biggest buyers of these securities, owning over half the total amount outstanding. The next biggest group of holders consists of wealthy individuals in high income-tax brackets, followed by insurance companies.

Consumer and Bank Commercial Loans These loans to consumers and businesses are made principally by banks but, in the case of consumer loans, also by finance companies.

INTERNATIONALIZATION OF FINANCIAL MARKETS

The growing internationalization of financial markets has become an important trend. Before the 1980s, U.S. financial markets were much larger than those outside the United States, but in recent years the dominance of U.S. markets has been weakening. (See the Global box "Are U.S. Capital Markets Losing Their Edge?") The extraordinary growth of

Global Are U.S. Capital Markets Losing Their Edge?

Over the past few decades, the United States lost its international dominance in a number of manufacturing industries, including automobiles and consumer electronics, as other countries became more competitive in global markets. Recent evidence suggests that financial markets now are undergoing a similar trend: Just as Ford and General Motors have lost global market share to Toyota and Honda, U.S. stock and bond markets recently have seen their share of sales of newly-issued corporate securities slip. The London and Hong Kong stock exchanges now handle a larger share of initial public offerings (IPOs) of stock than does the New York Stock Exchange, which had been by far the dominant exchange in terms of IPO value before 2000. Furthermore, the number of stocks listed on U.S. exchanges has been falling, while stock listings abroad have been growing rapidly: Listings outside the United States are now about ten times greater than those in the United States. Likewise, the portion of new corporate bonds issued worldwide that are initially sold in U.S. capital markets has fallen below the share sold in European debt markets.

Why do corporations that issue new securities to raise capital now conduct more of this business in financial markets in Europe and Asia? Among the factors contributing to this trend are quicker adoption of technological innovation by foreign financial markets, tighter immigration controls in the United States following the terrorist attacks of 2001, and perceptions that listing on American exchanges will expose foreign securities issuers to greater risks of lawsuits. Many people see burdensome financial regulation as the main cause, however, and point specifically to the Sarbanes-Oxley Act of 2002. Congress passed this act after a number of accounting scandals involving U.S. corporations and the accounting firms that audited them came to light. Sarbanes-Oxley aims to strengthen the integrity of the auditing process and the quality of information provided in corporate financial statements. The costs to corporations of complying with the new rules and procedures are high, especially for smaller firms, but largely avoidable if firms choose to issue their securities in financial markets outside the United States. For this reason, there is much support for revising Sarbanes-Oxley to lessen its allegedly harmful effects and induce more securities issuers back to U.S. financial markets. However, evidence is not conclusive to support the view that Sarbanes-Oxley is the main cause of the relative decline of U.S. financial markets and therefore in need of reform.

Discussion of the relative decline of U.S. financial markets and debate about the factors that are contributing to it likely will continue. Chapter 8 provides more detail on the Sarbanes-Oxley Act and its effects on the U.S. financial system.

foreign financial markets has been the result of both large increases in the pool of savings in foreign countries such as Japan and the deregulation of foreign financial markets, which has enabled foreign markets to expand their activities. American corporations and banks are now more likely to tap international capital markets to raise needed funds, and American investors often seek investment opportunities abroad. Similarly, foreign corporations and banks raise funds from Americans, and foreigners have become important investors in the United States. A look at international bond markets and world stock markets will give us a picture of how this globalization of financial markets is taking place.

International Bond Market, Eurobonds, and Eurocurrencies

The traditional instruments in the international bond market are known as **foreign bonds**. Foreign bonds are sold in a foreign country and are denominated in that country's currency. For example, if the German automaker Porsche sells a bond in the

United States denominated in U.S. dollars, it is classified as a foreign bond. Foreign bonds have been an important instrument in the international capital market for centuries. In fact, a large percentage of U.S. railroads built in the nineteenth century were financed by sales of foreign bonds in Britain.

A more recent innovation in the international bond market is the **Eurobond**, a bond denominated in a currency other than that of the country in which it is sold—for example, a bond denominated in U.S. dollars sold in London. Currently, over 80% of the new issues in the international bond market are Eurobonds, and the market for these securities has grown very rapidly. As a result, the Eurobond market is now larger than the U.S. corporate bond market.

A variant of the Eurobond is **Eurocurrencies**, which are foreign currencies deposited in banks outside the home country. The most important of the Eurocurrencies are **Eurodollars**, which are U.S. dollars deposited in foreign banks outside the United States or in foreign branches of U.S. banks. Because these short-term deposits earn interest, they are similar to short-term Eurobonds. American banks borrow Eurodollar deposits from other banks or from their own foreign branches, and Eurodollars are now an important source of funds for American banks.

Note that the currency, the euro, can create some confusion about the terms Eurobond, Eurocurrencies, and Eurodollars. A bond denominated in euros is called a Eurobond *only if it is sold outside the countries that have adopted the euro.* In fact, most Eurobonds are not denominated in euros but are instead denominated in U.S. dollars. Similarly, Eurodollars have nothing to do with euros, but are instead U.S. dollars deposited in banks outside the United States.

World Stock Markets

Until recently, the U.S. stock market was by far the largest in the world, but foreign stock markets have been growing in importance, with the United States not always number one. The increased interest in foreign stocks has prompted the development in the United States of mutual funds that specialize in trading in foreign stock markets. As the Following the Financial News box indicates, American investors now pay attention not only to the Dow Jones Industrial Average but also to stock price indexes for foreign stock markets, such as the Nikkei 300 Average (Tokyo) and the Financial Times Stock Exchange (FTSE) 100-Share Index (London).

The internationalization of financial markets is having profound effects on the United States. Foreigners, particularly Japanese investors, are not only providing funds to corporations in the United States but are also helping finance the federal government. Without these foreign funds, the U.S. economy would have grown far less rapidly in the past twenty years. The internationalization of financial markets is also leading the way to a more integrated world economy in which flows of goods and technology between countries are more commonplace. In later chapters, we will encounter many examples of the important roles that international factors play in our economy.

FUNCTION OF FINANCIAL INTERMEDIARIES: INDIRECT FINANCE

As shown in Figure 1 (p. 69), funds can move from lenders to borrowers by a second route, called *indirect finance* because it involves a financial intermediary that stands between the lender-savers and the borrower-spenders and helps transfer funds from

Following the Financial News — Foreign Stock Market Indexes

Foreign stock market indexes are published daily in newspapers and on Internet sites such as finance.yahoo.com.

The most important of these stock market indexes are:

Dow Jones Industrial Average (DJIA): An index of the 30 largest publicly-traded corporations in the United States, maintained by the Dow Jones Corporation

S&P 500: An index of 500 of the largest companies traded in the United States, maintained by Standard & Poor's

NASDAQ Composite: An index for all the stocks that trade on the NASDAQ stock market, where most of the technology stocks in the United States are traded

FTSE 100: An index of the 100 most highly capitalized UK companies listed on the London Stock Exchange

DAX: An index of the 30 largest German companies trading on the Frankfurt Stock Exchange

CAC 40: An index of the 40 largest French companies trading on Euronext Paris

Hang Seng: An index of the largest companies trading on the Hong Kong stock markets

Strait Times: An index of the 30 largest companies trading on the Singapore Exchange

These indexes are reported daily in newspapers and on Internet sites such as http://www.finance.yahoo.com.

one to the other. A financial intermediary does this by borrowing funds from lender-savers and then using these funds to make loans to borrower-spenders. For example, a bank might acquire funds by issuing a liability to the public in the form of savings deposits (an asset for the public). It might then use the funds to acquire an asset by making a loan to General Motors or by buying a U.S. Treasury bond in the financial market. The ultimate result is that funds have been transferred from the public (the lender-savers) to General Motors or the U.S. Treasury (the borrower-spender) with the help of the financial intermediary (the bank).

The process of indirect financing using financial intermediaries, called **financial intermediation**, is the primary route for moving funds from lenders to borrowers. Indeed, although the media focus much of their attention on securities markets, particularly the stock market, financial intermediaries are a far more important source of financing for corporations than securities markets are. This is true not only for the United States but for other industrialized countries as well (see the Global box). Why are financial intermediaries and indirect finance so important in financial markets? To answer this question, we need to understand the roles of transaction costs, risk sharing, and information costs in financial markets.

Transaction Costs

Transaction costs, the time and money spent in carrying out financial transactions, are a major problem for people who have excess funds to lend. As we have seen, Carl the Carpenter needs $1,000 for his new tool, and you know that it is an excellent investment opportunity. You have the cash and would like to lend him the money, but to protect your investment, you have to hire a lawyer to write up the loan contract that specifies how much interest Carl will pay you, when he will make these interest payments, and when he will repay you the $1,000. Obtaining the contract will cost

Global The Importance of Financial Intermediaries Relative to Securities Markets: An International Comparison

Patterns of financing corporations differ across countries, but one key fact emerges: Studies of the major developed countries, including the United States, Canada, the United Kingdom, Japan, Italy, Germany, and France, show that when businesses go looking for funds to finance their activities, they usually obtain them indirectly through financial intermediaries and not directly from securities markets.* Even in the United States and Canada, which have the most developed securities markets in the world, loans from financial intermediaries are far more important for corporate finance than securities markets are. The countries that have made the least use of securities markets are Germany and Japan; in these two countries, financing from financial intermediaries has been almost ten times greater than that from securities markets. However, after the deregulation of Japanese securities markets in recent years, the share of corporate financing by financial intermediaries has been declining relative to the use of securities markets.

Although the dominance of financial intermediaries over securities markets is clear in all countries, the relative importance of bond versus stock markets differs widely across countries. In the United States, the bond market is far more important as a source of corporate finance: On average, the amount of new financing raised using bonds is ten times the amount raised using stocks. By contrast, countries such as France and Italy make more use of equities markets than of the bond market to raise capital.

*See, for example, Colin Mayer, "Financial Systems, Corporate Finance, and Economic Development," in *Asymmetric Information, Corporate Finance, and Investment*, ed. R. Glenn Hubbard (Chicago: University of Chicago Press, 1990), pp. 307–332.

you $500. When you figure in this transaction cost for making the loan, you realize that you can't earn enough from the deal (you spend $500 to make perhaps $100) and reluctantly tell Carl that he will have to look elsewhere.

This example illustrates that small savers like you or potential borrowers like Carl might be frozen out of financial markets and thus be unable to benefit from them. Can anyone come to the rescue? Financial intermediaries can.

Financial intermediaries can substantially reduce transaction costs because they have developed expertise in lowering them and because their large size allows them to take advantage of **economies of scale**, the reduction in transaction costs per dollar of transactions as the size (scale) of transactions increases. For example, a bank knows how to find a good lawyer to produce an airtight loan contract, and this contract can be used over and over again in its loan transactions, thus lowering the legal cost per transaction. Instead of a loan contract (which may not be all that well written) costing $500, a bank can hire a top-flight lawyer for $5,000 to draw up an airtight loan contract that can be used for 2,000 loans at a cost of $2.50 per loan. At a cost of $2.50 per loan, it now becomes profitable for the financial intermediary to lend Carl the $1,000.

Because financial intermediaries are able to reduce transaction costs substantially, they make it possible for you to provide funds indirectly to people like Carl with productive investment opportunities. In addition, a financial intermediary's low transaction costs mean that it can provide its customers with **liquidity services**, services that make it easier for customers to conduct transactions. For example, banks provide depositors with checking accounts that enable them to pay their bills easily. In addition, depositors can earn interest on checking and savings accounts and yet still convert them into goods and services whenever necessary.

Risk Sharing

Another benefit made possible by the low transaction costs of financial institutions is that these institutions can help reduce the exposure of investors to **risk**—that is, uncertainty about the returns investors will earn on assets. Financial intermediaries do this through the process known as **risk sharing**: They create and sell assets with risk characteristics that people are comfortable with, and the intermediaries then use the funds they acquire by selling these assets to purchase other assets that may have far more risk. Low transaction costs allow financial intermediaries to share risk at low cost, enabling them to earn a profit on the spread between the returns they earn on risky assets and the payments they make on the assets they have sold. This process of risk sharing is also sometimes referred to as **asset transformation**, because in a sense, risky assets are turned into safer assets for investors.

Financial intermediaries also promote risk sharing by helping individuals to diversify and thereby lower the amount of risk to which they are exposed. **Diversification** entails investing in a collection (**portfolio**) of assets whose returns do not always move together, with the result that overall risk is lower than for individual assets. (Diversification is just another name for the old adage "You shouldn't put all your eggs in one basket.") Low transaction costs allow financial intermediaries to pool a collection of assets into a new asset and then sell it to individuals.

Asymmetric Information: Adverse Selection and Moral Hazard

The presence of transaction costs in financial markets explains, in part, why financial intermediaries and indirect finance play such an important role in financial markets. An additional reason is that in financial markets, one party often does not know enough about the other party to make accurate decisions. This inequality is called **asymmetric information**. For example, a borrower who takes out a loan usually has better information about the potential returns and risks associated with the investment projects for which the funds are earmarked than the lender does. Lack of information creates problems in the financial system on two fronts: before the transaction is entered into, and afterward.[1]

Adverse selection is the problem created by asymmetric information *before* the transaction occurs. Adverse selection in financial markets occurs when the potential borrowers who are the most likely to produce an undesirable (*adverse*) outcome—the bad credit risks—are the ones who most actively seek out a loan and are thus most likely to be selected. Because adverse selection makes it more likely that loans might be made to bad credit risks, lenders may decide not to make any loans, even though good credit risks exist in the marketplace.

To understand why adverse selection occurs, suppose you have two aunts to whom you might make a loan—Aunt Louise and Aunt Sheila. Aunt Louise is a conservative type who borrows only when she has an investment she is quite sure will pay off. Aunt Sheila, by contrast, is an inveterate gambler who has just come across a get-rich-quick scheme that will make her a millionaire if she can just borrow $1,000 to invest in it. Unfortunately, as with most get-rich-quick schemes, the probability is high that the investment won't pay off and that Aunt Sheila will lose the $1,000.

[1]Asymmetric information and the adverse selection and moral hazard concepts are also crucial problems for the insurance industry.

Which of your aunts is more likely to call you to ask for a loan? Aunt Sheila, of course, because she has so much to gain if the investment pays off. You, however, would not want to make a loan to her because the probability is high that her investment will turn sour and she will be unable to pay you back.

If you know both your aunts very well—that is, if your information is not asymmetric—you won't have a problem, because you will know that Aunt Sheila is a bad risk and so you will not lend to her. Suppose, though, that you don't know your aunts well. You will be more likely to lend to Aunt Sheila than to Aunt Louise because Aunt Sheila will be hounding you for the loan. Because of the possibility of adverse selection, you might decide not to lend to either of your aunts, even though there are times when Aunt Louise, who is an excellent credit risk, might need a loan for a worthwhile investment.

Moral hazard is the problem created by asymmetric information *after* the transaction occurs. Moral hazard in financial markets is the risk (*hazard*) that the borrower might engage in activities that are undesirable (*immoral*) from the lender's point of view, because they make it less likely that the loan will be paid back. Because moral hazard lowers the probability that the loan will be repaid, lenders may decide that they would rather not make a loan.

As an example of moral hazard, suppose that you made a $1,000 loan to another relative, Uncle Melvin, who needs the money to purchase a computer so that he can set up a business typing students' term papers. Once you have made the loan, however, Uncle Melvin is more likely to slip off to the track and play the horses than to purchase the computer. If he bets on a 20-to-1 long shot and wins with your money, he is able to pay back your $1,000 and live high-off-the-hog with the remaining $19,000. But if he loses, as is likely, you won't get paid back, and all he has lost is his reputation as a reliable, upstanding uncle. Uncle Melvin therefore has an incentive to go to the track because his gains ($19,000) if he bets correctly are much greater than the cost to him (his reputation) if he bets incorrectly. If you knew what Uncle Melvin was up to, you would prevent him from going to the track, and he would not be able to increase the moral hazard. However, because it is hard for you to keep informed about his whereabouts—that is, because information is asymmetric—there is a good chance that Uncle Melvin will go to the track and you will not get paid back. The risk of moral hazard might therefore discourage you from making the $1,000 loan to Uncle Melvin, even if you are sure that you will be paid back if he uses it to set up his business.

The problems created by adverse selection and moral hazard are a major impediment to well-functioning financial markets. Again, financial intermediaries can alleviate these problems.

With financial intermediaries in the economy, small savers can provide their funds to the financial markets by lending these funds to a trustworthy intermediary—say, the Honest John Bank—which in turn lends the funds out either by making loans or by buying securities such as stocks or bonds. Successful financial intermediaries have higher earnings on their investments than do small savers, because they are better equipped than individuals to screen out bad credit risks from good ones, thereby reducing losses due to adverse selection. In addition, financial intermediaries have high earnings because they develop expertise in monitoring the parties they lend to, thus reducing losses due to moral hazard. The result is that financial intermediaries can afford to pay lender-savers interest or provide substantial services and still earn a profit.

As we have seen, financial intermediaries play an important role in the economy because they provide liquidity services, promote risk sharing, and solve information problems, thereby allowing small savers and borrowers to benefit from the existence of financial markets. The success of financial intermediaries in performing this role is

evidenced by the fact that most Americans invest their savings with them and obtain loans from them. Financial intermediaries play a key role in improving economic efficiency because they help financial markets channel funds from lender-savers to people with productive investment opportunities. Without a well-functioning set of financial intermediaries, it is very hard for an economy to reach its full potential. We will explore further the role of financial intermediaries in the economy in Part 3.

Economies of Scope and Conflicts of Interest

Another reason why financial intermediaries play such an important part in the economy is that by providing multiple financial services to their customers, such as offering them bank loans or selling their bonds for them, they can also achieve **economies of scope**; that is, they can lower the cost of information production for each service by applying one information resource to many different services. A bank, for example, when making a loan to a corporation, can evaluate how good a credit risk the firm is, which then helps the bank decide whether it would be easy to sell the bonds of this corporation to the public.

Although economies of scope may substantially benefit financial institutions, they also create potential costs in terms of **conflicts of interest**. Conflicts of interest, a type of moral hazard problem, arise when a person or institution has multiple objectives (interests), some of which conflict with each other. Conflicts of interest are especially likely to occur when a financial institution provides multiple services. The potentially competing interests of those services may lead an individual or firm to conceal information or disseminate misleading information. We care about conflicts of interest because a substantial reduction in the quality of information in financial markets increases asymmetric information problems and prevents financial markets from channeling funds into the most productive investment opportunities. Consequently, the financial markets and the economy become less efficient.

TYPES OF FINANCIAL INTERMEDIARIES

We have seen why financial intermediaries have such an important function in the economy. Now we take a look at the principal financial intermediaries and how they perform the intermediation function. Financial intermediaries fall into three categories: depository institutions (banks), contractual savings institutions, and investment intermediaries. Table 3 describes the primary liabilities (sources of funds) and assets (uses of funds) of the financial intermediaries in each category. The relative sizes of these intermediaries in the United States are indicated in Table 4, which lists the amounts of their assets at the end of 1980, 1990, 2000, and 2013.

Depository Institutions

Depository institutions (for simplicity, we refer to these as *banks* throughout this text) are financial intermediaries that accept deposits from individuals and institutions and make loans. The study of money and banking focuses special attention on this group of financial institutions because they are involved in the creation of deposits, an important component of the money supply. These institutions include commercial banks and the so-called **thrift institutions (thrifts)**: savings and loan associations, mutual savings banks, and credit unions.

TABLE 3 Primary Assets and Liabilities of Financial Intermediaries

Type of Intermediary	Primary Liabilities (Sources of Funds)	Primary Assets (Uses of Funds)
Depository institutions (banks)		
Commercial banks	Deposits	Business and consumer loans, mortgages, U.S. government securities, and municipal bonds
Savings and loan associations	Deposits	Mortgages
Mutual savings banks	Deposits	Mortgages
Credit unions	Deposits	Consumer loans
Contractual savings institutions		
Life insurance companies	Premiums from policies	Corporate bonds and mortgages
Fire and casualty insurance companies	Premiums from policies	Municipal bonds, corporate bonds and stock, and U.S. government securities
Pension funds, government retirement funds	Employer and employee contributions	Corporate bonds and stock
Investment intermediaries		
Finance companies	Commercial paper, stocks, bonds	Consumer and business loans
Mutual funds	Shares	Stocks, bonds
Money market mutual funds	Shares	Money market instruments
Hedge funds	Partnership participation	Stocks, bonds, loans, foreign currencies, and many other assets

Commercial Banks These financial intermediaries raise funds primarily by issuing checkable deposits (deposits on which checks can be written), savings deposits (deposits that are payable on demand but do not allow their owners to write checks), and time deposits (deposits with fixed terms to maturity). They then use these funds to make commercial, consumer, and mortgage loans and to buy U.S. government securities and municipal bonds. Slightly fewer than 5,700 commercial banks are found in the United States and, as a group, they are the largest financial intermediary and have the most diversified portfolios (collections) of assets.

Savings and Loan Associations (S&Ls) and Mutual Savings Banks These depository institutions, of which there are approximately 900 in the United States, obtain funds primarily through savings deposits (often called *shares*) and time and checkable deposits. In the past, these institutions were constrained in their activities and mostly made mortgage loans for residential housing. Over time, these restrictions have been loosened, so the distinction between these depository institutions and commercial banks has blurred. These intermediaries have become more alike and are now more competitive with each other.

TABLE 4 Primary Financial Intermediaries and Value of Their Assets

Type of Intermediary	Value of Assets ($ billions, end of year) 1980	1990	2000	2013
Depository institutions (banks)				
Commercial banks	1,481	3,334	6,469	12,670
Savings and loan associations and mutual savings banks	792	1,365	1,218	2,157
Credit unions	67	215	441	1,005
Contractual savings institutions				
Life insurance companies	464	1,367	3,136	6,035
Fire and casualty insurance companies	182	533	862	1,527
Pension funds (private)	504	1,629	4,355	7,966
State and local government retirement funds	197	737	2,293	4,846
Investment intermediaries				
Finance companies	205	610	1,140	1,474
Mutual funds	70	654	4,435	11,527
Money market mutual funds	76	498	1,812	2,678

Source: Federal Reserve Flow of Funds Accounts; http://www.federalreserve.gov/releases/Z1/.

Credit Unions These financial institutions, numbering about 7,000 in the United States, are typically very small cooperative lending institutions organized around a particular group: union members, employees of a particular firm, and so forth. They acquire funds from deposits called *shares* and primarily make consumer loans.

Contractual Savings Institutions

Contractual savings institutions, such as insurance companies and pension funds, are financial intermediaries that acquire funds at periodic intervals on a contractual basis. Because they can predict with reasonable accuracy how much they will have to pay out in benefits in the coming years, they do not have to worry as much as depository institutions about losing funds quickly. As a result, the liquidity of assets is not as important a consideration for them as it is for depository institutions, and they tend to invest their funds primarily in long-term securities such as corporate bonds, stocks, and mortgages.

Life Insurance Companies Life insurance companies insure people against financial hazards following a death and sell annuities (annual income payments upon retirement). They acquire funds from the premiums that people pay to keep their policies in force and use them mainly to buy corporate bonds and mortgages. They also purchase stocks, but are restricted in the amount that they can hold. Currently, with $6 trillion in assets, they are among the largest of the contractual savings institutions.

Fire and Casualty Insurance Companies These companies insure their policyholders against loss from theft, fire, and accidents. They are very much like life insurance companies, receiving funds through premiums for their policies, but they have a greater possibility of loss of funds if major disasters occur. For this reason, they use their funds to buy more liquid assets than life insurance companies do. Their largest holding of assets consists of municipal bonds; they also hold corporate bonds and stocks and U.S. government securities.

Pension Funds and Government Retirement Funds Private pension funds and state and local retirement funds provide retirement income in the form of annuities to employees who are covered by a pension plan. Funds are acquired by contributions from employers and from employees, who either have a contribution automatically deducted from their paychecks or contribute voluntarily. The largest asset holdings of pension funds are corporate bonds and stocks. The establishment of pension funds has been actively encouraged by the federal government, both through legislation requiring pension plans and through tax incentives to encourage contributions.

Investment Intermediaries

This category of financial intermediary includes finance companies, mutual funds, money market mutual funds, and hedge funds.

Finance Companies Finance companies raise funds by selling commercial paper (a short-term debt instrument) and by issuing stocks and bonds. They lend these funds to consumers, who use them to purchase such items as furniture, automobiles, and home improvements, and to small businesses. Some finance companies are organized by a parent corporation to help sell its product. For example, Ford Motor Credit Company makes loans to consumers who purchase Ford automobiles.

Mutual Funds These financial intermediaries acquire funds by selling shares to many individuals and then using the proceeds to purchase diversified portfolios of stocks and bonds. Mutual funds allow shareholders to pool their resources so that they can take advantage of lower transaction costs when buying large blocks of stocks or bonds. In addition, mutual funds allow shareholders to hold more diversified portfolios than they otherwise would. Shareholders can sell (redeem) shares at any time, but the value of these shares will be determined by the value of the mutual fund's holdings of securities. Because these fluctuate greatly, the value of mutual fund shares will, too; therefore, investments in mutual funds can be risky.

Money Market Mutual Funds These financial institutions are similar to mutual funds but also function to some extent as depository institutions because they offer deposit-type accounts. Like most mutual funds, they sell shares to acquire funds that are then used to buy money market instruments that are both safe and very liquid. The interest on these assets is paid out to the shareholders.

A key feature of these funds is that shareholders can write checks against the value of their shareholdings. In effect, shares in a money market mutual fund function like checking account deposits that pay interest. Money market mutual funds have experienced extraordinary growth since 1971, when they first appeared. In 2013, their assets had climbed to $2.7 trillion.

Hedge Funds Hedge funds are a type of mutual fund with special characteristics. Hedge funds are organized as limited partnerships with minimum investments ranging from $100,000 to, more typically, $1 million or more. These limitations mean that hedge funds are subject to much weaker regulation than other mutual funds. Hedge funds invest in many types of assets, with some specializing in stocks, others in bonds, others in foreign currencies, and still others in far more exotic assets.

Investment Banks Despite its name, an investment bank is not a bank or a financial intermediary in the ordinary sense; that is, it does not take in funds and then lend them out. Instead, an investment bank is a different type of intermediary that helps a corporation issue securities. First it advises the corporation on which type of securities to issue (stocks or bonds); then it helps sell (**underwrite**) the securities by purchasing them from the corporation at a predetermined price and reselling them in the market. Investment banks also act as deal makers and earn enormous fees by helping corporations acquire other companies through mergers or acquisitions.

REGULATION OF THE FINANCIAL SYSTEM

The financial system is among the most heavily regulated sectors of the American economy. The government regulates financial markets for two main reasons: to increase the information available to investors and to ensure the soundness of the financial system. We will examine how these two goals have led to the present regulatory environment. As a study aid, the principal regulatory agencies of the U.S. financial system are listed in Table 5.

Increasing Information Available to Investors

Asymmetric information in financial markets means that investors may be subject to adverse selection and moral hazard problems that may hinder the efficient operation of financial markets. Risky firms or outright crooks may be the most eager to sell securities to unwary investors, and the resulting adverse selection problem may keep investors out of financial markets. Furthermore, once an investor has bought a security, thereby lending money to a firm, the borrower may have incentives to engage in risky activities or to commit outright fraud. The presence of this moral hazard problem may also keep investors away from financial markets. Government regulation can reduce adverse selection and moral hazard problems in financial markets and enhance the efficiency of the markets by increasing the amount of information available to investors.

As a result of the stock market crash of 1929 and revelations of widespread fraud in the aftermath, political demands for regulation culminated in the Securities Act of 1933 and the establishment of the Securities and Exchange Commission (SEC) in 1934. The SEC requires corporations issuing securities to disclose certain information about their sales, assets, and earnings to the public, and restricts trading by the largest stockholders (known as *insiders*) in the corporation. By requiring disclosure and by discouraging insider trading, which could be used to manipulate security prices, the SEC hopes that investors will be better informed and protected from the types of abuses that occurred in financial markets before 1933. Indeed, in recent years, the SEC has been particularly active in prosecuting people involved in insider trading.

TABLE 5 Principal Regulatory Agencies of the U.S. Financial System

Regulatory Agency	Subject of Regulation	Nature of Regulations
Securities and Exchange Commission (SEC)	Organized exchanges and financial markets	Requires disclosure of information; restricts insider trading
Commodities Futures Trading Commission (CFTC)	Futures market exchanges	Regulates procedures for trading in futures markets
Office of the Comptroller of the Currency	Federally-chartered commercial banks and thrift institutions	Charters and examines the books of federally-chartered commercial banks and thrift institutions; imposes restrictions on assets they can hold
National Credit Union Administration (NCUA)	Federally-chartered credit unions	Charters and examines the books of federally-chartered credit unions and imposes restrictions on assets they can hold
State banking and insurance commissions	State-chartered depository institutions and insurance companies	Charter and examine the books of state-chartered banks and insurance companies, impose restrictions on assets they can hold, and impose restrictions on branching
Federal Deposit Insurance Corporation (FDIC)	Commercial banks, mutual savings banks, savings and loan associations	Provides insurance of up to $250,000 for each depositor at a bank, examines the books of insured banks, and imposes restrictions on assets they can hold
Federal Reserve System	All depository institutions	Examines the books of commercial banks and systemically important financial institutions; sets reserve requirements for all banks

Ensuring the Soundness of Financial Intermediaries

Asymmetric information can lead to the widespread collapse of financial intermediaries, referred to as a **financial panic**. Because providers of funds to financial intermediaries may not be able to assess whether the institutions holding their funds are sound, if they have doubts about the overall health of financial intermediaries, they may want to pull their funds out of both sound and unsound institutions. The possible outcome is a financial panic that produces large losses for the public and causes serious damage to the economy. To protect the public and the economy from financial panics, the government has implemented six types of regulations.

Restrictions on Entry State banking and insurance commissions, as well as the Office of the Comptroller of the Currency (an agency of the federal government), have created tight regulations governing who is allowed to set up a financial intermediary. Individuals or groups that want to establish a financial intermediary, such as a bank or an insurance company, must obtain a charter from the state or the federal government.

Only upstanding citizens with impeccable credentials and a large amount of initial funds will be given a charter.

Disclosure Reporting requirements for financial intermediaries are stringent. Their bookkeeping must follow certain strict principles, their books are subject to periodic inspection, and they must make certain information available to the public.

Restrictions on Assets and Activities Financial intermediaries are restricted in what they are allowed to do and what assets they can hold. Before you put funds into a bank or similar institution, you will want to know that your funds are safe and that the bank or other financial intermediary will be able to meet its obligations to you. One way of ensuring the trustworthiness of financial intermediaries is to restrict them from engaging in certain risky activities. Legislation passed in 1933 (and repealed in 1999) separated commercial banking from the securities industry so that banks could not engage in risky ventures associated with this industry. Another way to limit a financial intermediary's behavior is to restrict it from holding certain risky assets, or at least from holding a greater quantity of these risky assets than is prudent. For example, commercial banks and other depository institutions are not allowed to hold common stock because stock prices experience substantial fluctuations. Insurance companies are allowed to hold common stock, but their holdings cannot exceed a certain fraction of their total assets.

Deposit Insurance The government can insure people's deposits so that they do not suffer great financial loss if the financial intermediary that holds these deposits should fail. The most important government agency that provides this type of insurance is the Federal Deposit Insurance Corporation (FDIC), which insures each depositor at a commercial bank or mutual savings bank up to a loss of $250,000 per account. Premiums paid by these financial institutions go into the FDIC's Deposit Insurance Fund, which is used to pay off depositors if an institution fails. The FDIC was created in 1934 after the massive bank failures of 1930–1933, in which the savings of many depositors at commercial banks were wiped out. The National Credit Union Share Insurance Fund (NCUSIF) does the same for credit unions.

Limits on Competition Politicians have often declared that unbridled competition among financial intermediaries promotes failures that harm the public. Although the evidence that competition does indeed have this effect is extremely weak, state and federal governments at times have imposed restrictions on the opening of additional locations (branches). In the past, banks were not allowed to open branches in other states, and in some states banks were restricted from opening branches in additional locations.

Restrictions on Interest Rates Competition has also been inhibited by regulations that impose restrictions on interest rates that can be paid on deposits. For decades after 1933, banks were prohibited from paying interest on checking accounts. In addition, until 1986, the Federal Reserve System had the power under *Regulation Q* to set maximum interest rates that banks could pay on savings deposits. These regulations were instituted because of the widespread belief that unrestricted interest-rate competition helped encourage bank failures during the Great Depression. Later evidence does not seem to support this view, and Regulation Q has been abolished (although there are still restrictions on paying interest on checking accounts held by businesses).

In later chapters, we will look more closely at government regulation of financial markets and explore whether it has improved their functioning.

Financial Regulation Abroad

Not surprisingly, given the similarity of the economic systems here and in Japan, Canada, and the nations of Western Europe, financial regulation in these countries is similar to that in the United States. Provision of information is improved by requiring corporations issuing securities to report details about assets and liabilities, earnings, and sales of stock, and by prohibiting insider trading. The soundness of intermediaries is ensured by licensing, periodic inspection of financial intermediaries' books, and provision of deposit insurance (although its coverage is smaller than that in the United States and its existence is often intentionally not advertised).

The major differences between financial regulation in the United States and abroad relate to bank regulation. In the past, the United States was the only industrialized country that subjected banks to restrictions on branching, which limited their size and confined them to certain geographic regions. (These restrictions were abolished by legislation in 1994.) U.S. banks are also the most restricted in the range of assets they may hold. Banks abroad frequently hold shares in commercial firms; in Japan and Germany, those stakes can be sizable.

SUMMARY

1. The basic function of financial markets is to channel funds from savers who have an excess of funds to spenders who have a shortage of funds. Financial markets can do this either through direct finance, in which borrowers borrow funds directly from lenders by selling them securities, or through indirect finance, which involves a financial intermediary that stands between the lender-savers and the borrower-spenders and helps transfer funds from one to the other. This channeling of funds improves the economic welfare of everyone in society. Because they allow funds to move from people who have no productive investment opportunities to those who have such opportunities, financial markets contribute to economic efficiency. In addition, channeling of funds directly benefits consumers by allowing them to make purchases when they need them most.
2. Financial markets can be classified as debt and equity markets, primary and secondary markets, exchanges and over-the-counter markets, and money and capital markets.
3. The principal money market instruments (debt instruments with maturities of less than one year) are U.S. Treasury bills, negotiable bank certificates of deposit, commercial paper, repurchase agreements, and federal funds. The principal capital market instruments (debt and equity instruments with maturities greater than one year) are stocks, mortgages, corporate bonds, U.S. government securities, U.S. government agency securities, state and local government bonds, and consumer and bank commercial loans.
4. An important trend in recent years is the growing internationalization of financial markets. Eurobonds, which are denominated in a currency other than that of the country in which they are sold, are now the dominant security in the international bond market and have surpassed U.S. corporate bonds as a source of new funds. Eurodollars, which are U.S. dollars deposited in foreign banks, are an important source of funds for American banks.
5. Financial intermediaries are financial institutions that acquire funds by issuing liabilities and, in turn, use those funds to acquire assets by purchasing securities or making loans. Financial intermediaries play an important role in the financial system because they reduce transaction costs, allow risk sharing, and solve problems created by adverse selection and moral hazard. As a result, financial intermediaries allow small savers and borrowers to benefit from the existence of financial markets, thereby increasing the efficiency of the economy. However, the economies of scope that help make financial intermediaries successful can lead

to conflicts of interest that make the financial system less efficient.

6. The principal financial intermediaries fall into three categories: (a) banks—commercial banks, savings and loan associations, mutual savings banks, and credit unions; (b) contractual savings institutions—life insurance companies, fire and casualty insurance companies, and pension funds; and (c) investment intermediaries—finance companies, mutual funds, money market mutual funds and hedge funds.
7. The government regulates financial markets and financial intermediaries for two main reasons: to increase the information available to investors and to ensure the soundness of the financial system. Regulations include requiring disclosure of information to the public, restrictions on who can set up a financial intermediary, restrictions on what assets financial intermediaries can hold, the provision of deposit insurance, limits on competition, and restrictions on interest rates.

KEY TERMS

adverse selection, p. 82
asset transformation, p. 82
asymmetric information, p. 82
brokers, p. 72
capital, p. 70
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QUESTIONS

Select questions are available in MyEconLab *at* http://www.myeconlab.com.

1. If I can buy a car today for $5,000 and it is worth $10,000 in extra income to me next year because it enables me to get a job as a traveling salesman, should I take out a loan from Larry the Loan Shark at a 90% interest rate if no one else will give me a loan? Will I be better or worse off as a result of taking out this loan? Can you make a case for legalizing loan sharking?
2. Some economists suspect that one of the reasons economies in developing countries grow so slowly is that they do not have well-developed financial markets. Does this argument make sense?
3. Why is a share of Microsoft common stock an asset for its owner and a liability for Microsoft?
4. If you suspect that a company will go bankrupt next year, which would you rather hold, bonds issued by the company or equities issued by the company? Why?
5. "Because corporations do not actually raise any funds in secondary markets, secondary markets are less important to the economy than primary markets are." Is this statement true, false, or uncertain?
6. Describe who issues each of the following money market instruments:
   a. Treasury bills
   b. Certificates of deposit
   c. Commercial paper
   d. Repurchase agreement
   e. Fed funds

7. What is the difference between a *mortgage* and a *mortgage-backed security*?
8. The U.S. economy borrowed heavily from the British in the nineteenth century to build a railroad system. Why did this make both countries better off?
9. A significant number of European banks held large amounts of assets as mortgage-backed securities derived from the U.S. housing market, which crashed after 2006. How does this demonstrate both a benefit and a cost to the internationalization of financial markets?
10. How does risk sharing benefit both financial intermediaries and private investors?
11. How can the adverse selection problem explain why you are more likely to make a loan to a family member than to a stranger?
12. One of the factors contributing to the financial crisis of 2007–2009 was the widespread issuance of subprime mortgages. How does this demonstrate adverse selection?
13. Why do loan sharks worry less about moral hazard in connection with their borrowers than some other lenders do?
14. If you are an employer, what kinds of moral hazard problems might you worry about with regard to your employees?
15. If there were no asymmetry in the information that a borrower and a lender had, could a moral hazard problem still exist?
16. "In a world without information costs and transaction costs, financial intermediaries would not exist." Is this statement true, false, or uncertain? Explain your answer.
17. Why might you be willing to make a loan to your neighbor by putting funds in a savings account earning a 5% interest rate at the bank and having the bank lend her the funds at a 10% interest rate, rather than lend her the funds yourself?
18. How do conflicts of interest make the asymmetric information problem worse?
19. How can the provision of several types of financial services by one firm be both beneficial and problematic?
20. If you were going to get a loan to purchase a new car, which financial intermediary would you use: a credit union, a pension fund, or an investment bank?
21. Why would a life insurance company be concerned about the financial stability of major corporations or the health of the housing market?
22. In 2008, as a financial crisis began to unfold in the United States, the FDIC raised the limit on insured losses to bank depositors from $100,000 per account to $250,000 per account. How would this help stabilize the financial system?

APPLIED PROBLEMS

Select applied problems are available in MyEconLab *at* http://www.myeconlab.com.

23. Suppose you have just inherited $10,500 and are considering the following options for investing the money to maximize your return:

    Option 1: Hold the money in cash and earn zero return.

    Option 2: Loan the money to one of your friend's roommates, Mike, at an agreed-upon interest rate of 8%, even though you believe there is a 7% chance that Mike will leave town without repaying you.

    Option 3: Invest the money in a corporate bond with a stated return of 5%, although there is a 10% chance the company could go bankrupt.

    Option 4: Put the money in an interest-bearing checking account that earns 2%. The FDIC insures the account against bank failure.

    a. If you are risk-neutral (that is, neither seek out nor shy away from risk), which of the four options should you choose to maximize your expected return? (*Hint:* To calculate the *expected return* of an outcome, multiply the probability that an event will occur by the outcome of that event.)

    b. Suppose Option 2 is your only possibility. If you could pay your friend $150 to find out extra information about Mike that would indicate with certainty whether he will leave town without paying, would you pay the $150? What does this say about the value of better information regarding risk?

DATA ANALYSIS PROBLEMS

The Problems update with real-time data in MyEconLab and are available for practice or instructor assignment.

1. Go to the St. Louis Federal Reserve FRED database, and find data on federal debt held by the Federal Reserve (FDHBFRBN), by private investors (FDHBPIN), and by international and foreign investors (FDHBFIN). Using these series, calculate the total amount held and the percentage held in each of the three categories for the most recent quarter available. Repeat for the first quarter of 2000, and compare the results.

2. Go to the St. Louis Federal Reserve FRED database, and find data on the total assets of all commercial banks (TLAACBM027SBOG) and the total assets of money market mutual funds (MMMFFAQ027S). Transform the commercial bank assets series to quarterly by adjusting the *Frequency* setting to "Quarterly." Calculate the percent increase in growth of assets for each series, from January 2000 to the most recent quarter available. Which of the two financial intermediaries has experienced the most growth?

WEB EXERCISES

1. One of the single best sources of information about financial institutions is the U.S. Flow of Funds report, produced by the Federal Reserve. This document contains data on most financial intermediaries. Go to http://www.federalreserve.gov/releases/Z1/ and find the most current release. You may have to get Acrobat Reader if your computer does not already have it; the site has a link for a free download. Go to the Level Tables and answer the following questions.

a. What percentage of assets do commercial banks hold in loans? What percentage of assets is held in mortgage loans?

b. What percentage of assets do savings and loans hold in mortgage loans?

c. What percentage of assets do credit unions hold in mortgage loans and in consumer loans?

2. The most famous financial market in the world is the New York Stock Exchange. Go to http://www.nyse.com.

a. What is the mission of the NYSE?

b. Firms must pay a fee to list their shares for sale on the NYSE. What would be the fee for a firm with five million common shares outstanding?

WEB REFERENCES

http://stockcharts.com/charts/historical

Contains historical stock index charts for the Dow Jones Industrial Average, S&P 500, NASDAQ, 30-year Treasury Bond, and gold prices.

http://www.nyse.com

New York Stock Exchange. Find listed companies, quotes, company historical data, real-time market indexes, and more.

http://www.nasdaq.com

Detailed market and security information for the NASDAQ OTC stock exchange.

http://finance.yahoo.com

Major world stock indexes, with charts, news, and components.

http://www.sec.gov

The United States Securities and Exchange Commission home page. Contains vast SEC resources, laws and regulations, investor information, and litigation.