

Introduction

LEARNING OBJECTIVES

After reading this chapter, you will understand

- what a financial asset is and the principal economic functions of financial assets
- the distinction between financial assets and tangible assets
- what a financial market is and the principal economic functions it performs
- the distinction between debt instruments and equity instruments
- the various ways to classify financial markets
- the differences between the primary and secondary markets
- the participants in financial markets
- reasons for the globalization of financial markets
- the distinction between an internal market and an external market
- the distinction between a domestic market, a foreign market, and the Euromarket
- the reasons why entities use foreign markets and Euromarkets
- what a derivative instrument is and the two basic types of derivative instruments
- the role of derivative instruments
- the typical justification for governmental regulation of markets
- the different ways that governments regulate markets, including disclosure regulation, financial activity regulation, financial institution regulation, regulation of foreign firm participation, and regulation of the monetary system
- the U.S. Department of the Treasury's proposed plan for regulatory reform
- the primary reasons for financial innovation

om Chapter 1 of *Foundations of Financial Markets and Institutions*, 4/e. Frank J. Fabozzi. Franco Modigliani. Frank J. Jones.
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In a market economy, the allocation of economic resources is the outcome of many private decisions. Prices are the signals operating in a market economy that direct economic resources to their best use. The types of markets in an economy can be divided into (1) the market for products (manufactured goods and services), called the *product market*, and (2) the market for the factors of production (labor and capital), called the *factor market*.

Our purpose is to focus on one part of the factor market, the market for financial assets, or, more simply, the **financial market**. In this chapter, we will look at the role of financial markets, the "things" that are traded (i.e., bought and sold) in financial markets, the reasons for the integration of world financial markets, and the government's role in the regulation of financial markets. At the end of this chapter, we provide a brief overview of some of the reasons for financial innovation.

FINANCIAL ASSETS

We begin with a few basic definitions. An **asset**, broadly speaking, is any possession that has value in an exchange. Assets can be classified as *tangible* or *intangible*. A **tangible asset** is one whose value depends on particular physical properties—examples are buildings, land, or machinery. Intangible assets, by contrast, represent legal claims to some future benefit. Their value bears no relation to the form, physical or otherwise, in which these claims are recorded.

Financial assets are intangible assets. For financial assets, the typical benefit or value is a claim to future cash. This book deals with the various types of financial assets, the markets where they are traded, and the principles for valuing them. Throughout this book, we use the terms **financial asset**, *financial instrument*, and *security* interchangeably.

The entity that has agreed to make future cash payments is called the *issuer* of the financial asset; the owner of the financial asset is referred to as the *investor*. Here are just seven examples of financial assets:

- a loan by Bank of America (investor) to an individual (issuer/borrower) to purchase a car
- a bond issued by the U.S. Department of the Treasury
- a bond issued by Verizon Communications
- a bond issued by the City of New York
- a bond issued by the government of Japan
- a share of common stock issued by IBM
- a share of common stock issued by Honda Motor Company, a Japanese company

In the case of the car loan, the terms of the loan establish that the borrower must make specified payments to the commercial bank over time. The payments include repayment of the amount borrowed plus interest. The cash flow for this asset is made up of the specified payments that the borrower must make.

In the case of a U.S. Treasury bond, the U.S. government (the issuer) agrees to pay the holder or the investor the bond interest payments every six months until the bond matures, then at the maturity date repay the amount borrowed. The same is true for the bonds issued by Verizon Communications, the City of New York, and the government of Japan. In the case of Verizon Communications, the issuer is a corporation, not a government entity. In the case of the City of New York, the issuer is a municipal government. The issuer of the Japanese government bond is a central government entity.

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The common stock of IBM entitles the investor to receive dividends distributed by the company. The investor in this case also has a claim to a pro rata share of the net asset value of the company in case of liquidation of the company. The same is true of the common stock of Honda Motor Company.

Debt versus Equity Instruments

The claim that the holder of a financial asset has may be either a fixed dollar amount or a varying, or residual, amount. In the former case, the financial asset is referred to as a **debt instrument**. The car loan, the U.S. Treasury bond, the Verizon Communications bond, the City of New York bond, and the Japanese government bond cited above are examples of debt instruments requiring fixed dollar payments.

An **equity instrument** (also called a **residual claim**) obligates the issuer of the financial asset to pay the holder an amount based on earnings, if any, after holders of debt instruments have been paid. Common stock is an example of an equity instrument. A partnership share in a business is another example.

Some securities fall into both categories. Preferred stock, for example, is an equity instrument that entitles the investor to receive a fixed dollar amount. This payment is contingent, however, and due only after payments to debt instrument holders are made. Another "combination" instrument is a convertible bond, which allows the investor to convert debt into equity under certain circumstances. Both debt and preferred stock that pay fixed dollar amounts are called **fixed-income instruments**.

The Price of a Financial Asset and Risk

A basic economic principle is that the price of any financial asset is equal to the present value of its expected cash flow, even if the cash flow is not known with certainty. By cash flow, we mean the stream of cash payments over time. For example, if a U.S. government bond promises to pay $30 every six months for the next 30 years and $1,000 at the end of 30 years, then this is its cash flow. In the case of the car loan by Bank of America, if the borrower is obligated to pay $500 every month for three years, then this is the cash flow of the loan. We elaborate on this principle throughout this book as we discuss several theories for the pricing of financial assets.

Directly related to the notion of price is the expected return on a financial asset. Given the expected cash flow of a financial asset and its price, we can determine its expected rate of return. For example, if the price of a financial asset is $100, and its only cash flow is $105 one year from now, its expected return would be 5%.

The type of financial asset, whether debt instrument or equity instrument, and the characteristics of the issuer determine the degree of certainty of the expected cash flow. For example, assuming that the U.S. government never defaults on the debt instruments it issues, the cash flow of U.S. Treasury securities is known with certainty. What is uncertain, however, is the purchasing power of the cash flow received.

In the case of the Bank of America car loan, the ability of the borrower to repay presents some uncertainty about the cash flow. But, if the borrower does not default on the loan obligation, the investor (Bank of America) knows what the cash flow will be. The same is true for the bonds of Verizon Communications and the City of New York.

In the case of the Japanese government bond, the cash flow is known if the Japanese government does not default. The cash flow, however, may be denominated not in U.S.

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dollars but in the Japanese currency, the yen. Thus, while the cash flow is known in terms of the number of yen that will be received, from the perspective of a U.S. investor, the number of U.S. dollars is unknown. The number of U.S. dollars will depend on the exchange rate between the Japanese yen and the U.S. dollar at the time the cash flow is received.

The holder of IBM common stock is uncertain as to both the amount and the timing of dividend payments. Dividend payments will be related to company profits. The same is true for the cash flow of the common stock of Honda Motor Company. In addition, because Honda will make dividend payments in Japanese yen, there is uncertainty about the cash flow in terms of U.S. dollars.

Although there are various types of risks that we will discuss in this chapter and those to follow, we can see three of them in our examples. The first is the risk attached to the potential purchasing power of the expected cash flow. This is called **purchasing power risk**, or **inflation risk**. The second is the risk that the issuer or borrower will default on the obligation. This is called **credit risk**, or **default risk**. Finally, for financial assets whose cash flow is not denominated in U.S. dollars, there is the risk that the exchange rate will change adversely, resulting in less U.S. dollars. This risk is referred to as **foreign-exchange risk**.

Financial Assets versus Tangible Assets

A tangible asset such as plant or equipment purchased by a business entity shares at least one characteristic with a financial asset: Both are expected to generate future cash flow for their owner. For example, suppose a U.S. airline purchases a fleet of aircraft for $250 million. With its purchase of the aircraft, the airline expects to realize cash flow from passenger travel.

Financial assets and tangible assets are linked. Ownership of tangible assets is financed by the issuance of some type of financial asset—either debt instruments or equity instruments. For example, in the case of the airline, suppose that a debt instrument is issued to raise the $250 million to purchase the fleet of aircraft. The cash flow from the passenger travel will be used to service the payments on the debt instrument. Ultimately, therefore, the cash flow for a financial asset is generated by some tangible asset.

The Role of Financial Assets

Financial assets have two principal economic functions. The first is to transfer funds from those who have surplus funds to invest to those who need funds to invest in tangible assets. The second economic function is to transfer funds in such a way as to redistribute the unavoidable risk associated with the cash flow generated by tangible assets among those seeking and those providing the funds. However, as we will see, the claims held by the final wealth holders are generally different from the liabilities issued by the final demanders of funds because of the activity of financial intermediaries that seek to transform the final liabilities into the financial assets that the public prefers.

We can illustrate these two economic functions with three examples:

1. Joe Grasso has obtained a license to manufacture Rugrat wristwatches. Joe estimates that he will need $1 million to purchase plant and equipment to manufacture the watches. Unfortunately, he has only $200,000 to invest, and that is his life savings, which he does not want to invest, even though he has confidence that there will be a receptive market for the watches.

2. Susan Carlson has recently inherited $730,000. She plans to spend $30,000 on some jewelry, furniture, and a few cruises, and to invest the balance, $700,000.
3. Larry Stein, an up-and-coming attorney with a major New York law firm, has received a bonus check that after taxes has netted him $250,000. He plans to spend $50,000 on a BMW and invest the balance, $200,000.

Suppose that, quite by accident, Joe, Susan, and Larry meet at a social function. Sometime during their conversation, they discuss their financial plans. By the end of the evening, they agree to a deal. Joe agrees to invest $100,000 of his savings in the business and sell a 50% interest to Susan for $700,000. Larry agrees to lend Joe $200,000 for four years at an interest rate of 18% per year. Joe will be responsible for operating the business without the assistance of Susan or Larry. Joe now has his $1 million to manufacture the watches.

Two financial claims came out of this meeting. The first is an equity instrument issued by Joe and purchased by Susan for $700,000. The other is a debt instrument issued by Joe and purchased by Larry for $200,000. Thus, the two financial assets allowed funds to be transferred from Susan and Larry, who had surplus funds to invest, to Joe, who needed funds to invest in tangible assets in order to manufacture the watches. This transfer of funds is the first economic function of financial assets.

The fact that Joe is not willing to invest his life savings of $200,000 means that he wanted to transfer part of that risk. He does so by selling Susan a financial asset that gives her a financial claim equal to one-half the cash flow from the business. He further secures an additional amount of capital from Larry, who is not willing to share in the risk of the business (except for credit risk), in the form of an obligation requiring payment of a fixed cash flow, regardless of the outcome of the venture. This shifting of risk is the second economic function of financial assets.

Key Points That You Should Understand Before Proceeding

1. The difference between tangible assets and financial assets and how they are related.
2. The difference between debt instruments and equity instruments.
3. What is meant by the cash flow of a financial asset.
4. Three types of risk associated with investing in financial assets: purchasing power or inflation risk, default or credit risk, and exchange-rate risk.
5. The two principal economic functions of financial assets.

FINANCIAL MARKETS

A financial market is a market where financial assets are exchanged (i.e., traded). Although the existence of a financial market is not a necessary condition for the creation and exchange of a financial asset, in most economies financial assets are created and subsequently traded in some type of financial market. The market in which a financial asset trades for immediate delivery is called the **spot market** or **cash market.**

Role of Financial Markets

We previously explained the two primary economic functions of financial assets. Financial markets provide three additional economic functions.

First, the interactions of buyers and sellers in a financial market determine the price of the traded asset. Or, equivalently, they determine the required return on a financial asset.

As the inducement for firms to acquire funds depends on the required return that investors demand, it is this feature of financial markets that signals how the funds in the economy should be allocated among financial assets. This is called the **price discovery process.**

Second, financial markets provide a mechanism for an investor to sell a financial asset. Because of this feature, it is said that a financial market offers *liquidity*, an attractive feature when circumstances either force or motivate an investor to sell. If there were not liquidity, the owner would be forced to hold a debt instrument until it matures and an equity instrument until the company is either voluntarily or involuntarily liquidated. While all financial markets provide some form of liquidity, the degree of liquidity is one of the factors that characterize different markets.

The third economic function of a financial market is that it reduces the cost of transacting. There are two costs associated with transacting: **search costs** and **information costs.**

Search costs represent explicit costs, such as the money spent to advertise one's intention to sell or purchase a financial asset, and implicit costs, such as the value of time spent in locating a counterparty. The presence of some form of organized financial market reduces search costs. Information costs are costs associated with assessing the investment merits of a financial asset, that is, the amount and the likelihood of the cash flow expected to be generated. In an efficient market, prices reflect the aggregate information collected by all market participants.

Classification of Financial Markets

There are many ways to classify financial markets. One way is by the type of financial claim, such as debt markets and equity markets. Another is by the maturity of the claim. For example, there is a financial market for short-term debt instruments, called the **money market**, and one for longer-maturity financial assets, called the **capital market.**

Financial markets can be categorized as those dealing with financial claims that are newly issued, called the *primary market*, and those for exchanging financial claims previously issued, called the **secondary market** or the market for seasoned instruments.

Markets are classified as either *cash* or *derivative instruments* markets. (The latter is described later in this chapter.) A market can be classified by its organizational structure: It may be an *auction market*, an *over-the-counter market*, or an *intermediated market.*

All these classifications are summarized in Table 1.

Market Participants

Participants in the global financial markets that issue and purchase financial claims include households, business entities (corporations and partnerships), national governments, national government agencies, state and local governments, and supranationals (such as the World Bank, the European Investment Bank, and the Asian Development Bank).

Business entities include nonfinancial and financial enterprises. Nonfinancial enterprises manufacture products—for example, cars, steel, and computers—and/or provide nonfinancial services—including transportation, utilities, and computer programming.

Finally, while we have focused on market participants that create and/or exchange financial assets, a broader definition of market participants would include regulators of financial markets. We will discuss regulation further later in this chapter.

Table 1 Summary of Classification of Financial Markets

CLASSIFICATION BY NATURE OF CLAIM:
Debt market
Equity market
CLASSIFICATION BY MATURITY OF CLAIM:
Money market
Capital market
CLASSIFICATION BY SEASONING OF CLAIM:
Primary market
Secondary market
CLASSIFICATION BY IMMEDIATE DELIVERY OR FUTURE DELIVERY:
Cash or spot market
Derivative market
CLASSIFICATION BY ORGANIZATIONAL STRUCTURE:
Auction market
Over-the-counter market
Intermediated market

Key Points That You Should Understand Before Proceeding

1. The three economic functions of financial markets are to improve the price discovery process, enhance liquidity, and reduce the cost of transacting.
2. There are various ways that financial markets can be classified.
3. The market participants include households, business entities, national governments, national government agencies, state and local governments, supranationals, and regulators.

GLOBALIZATION OF FINANCIAL MARKETS

Because of the globalization of financial markets throughout the world, entities in any country seeking to raise funds need not be limited to their domestic financial market. Nor are investors in a country limited to the financial assets issued in their domestic market. Globalization means the integration of financial markets throughout the world into an international financial market.

The factors that have led to the integration of financial markets are (1) deregulation or liberalization of markets and the activities of market participants in key financial centers of the world; (2) technological advances for monitoring world markets, executing orders, and analyzing financial opportunities; and (3) increased institutionalization of financial markets.

Global competition has forced governments to deregulate (or liberalize) various aspects of their financial markets so that their financial enterprises can compete effectively around the world.

Technological advances have increased the integration of and efficiency of the global financial market. Advances in telecommunication systems link market participants throughout the world, with the result that orders can be executed within seconds. Advances in

computer technology, coupled with advanced telecommunication systems, allow the transmission of real-time information on security prices and other key information to many participants in many places. Therefore, many investors can monitor global markets and simultaneously assess how this information will impact the risk/return profile of their portfolios. Significantly improved computing power allows the instant manipulation of real-time market information so that arbitrage opportunities can be identified. Once these opportunities are identified, telecommunication systems permit the rapid execution of orders to capture them.

The U.S. financial markets have shifted from domination by retail investors to domination by financial institutions. By *retail investors* we mean individuals. For example, when you or I buy a share of common stock, we are referred to as retail investors. Examples of financial institutions are pension funds, insurance companies, mutual funds, commercial banks, and savings and loan associations.

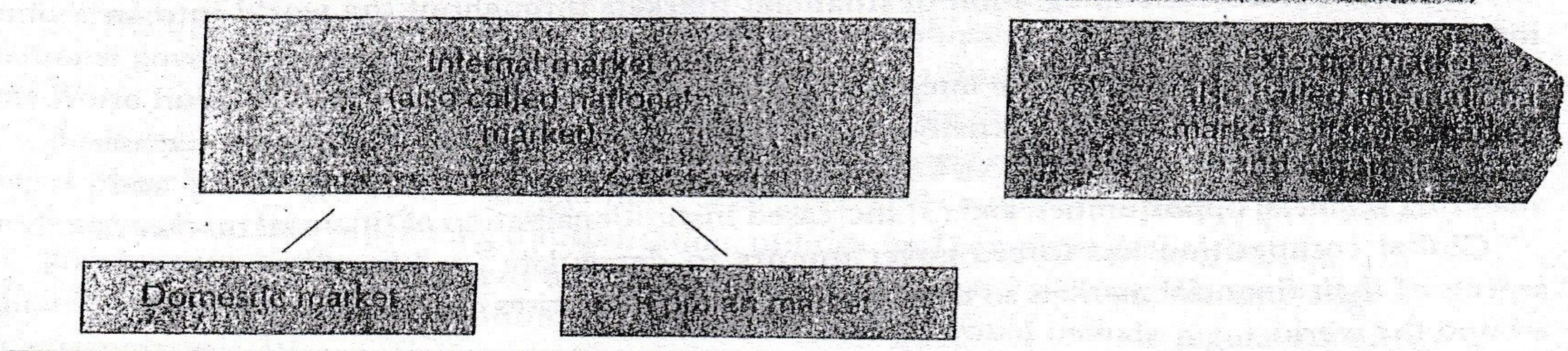
The shifting of the financial markets from dominance by retail investors to institutional investors is referred to as the *institutionalization* of financial markets. The same thing is occurring in other industrialized countries. Unlike retail investors, institutional investors have been more willing to transfer funds across national borders to improve portfolio diversification and/or exploit perceived mispricing of financial assets in foreign countries. The potential portfolio diversification benefits associated with global investing have been documented in numerous studies, which have heightened the awareness of investors about the virtues of global investing.

Classification of Global Financial Markets

Although there is no uniform system for classifying the global financial markets, an appropriate schematic presentation appears in Figure 1. From the perspective of a given country, financial markets can be classified as either internal or external. The **internal market** is also called the **national market**. It is composed of two parts: the **domestic market** and the **foreign market**. The domestic market is where issuers domiciled in a country issue securities and where those securities are subsequently traded.

The foreign market in any country is where the securities of issuers not domiciled in the country are sold and traded. The rules governing the issuance of foreign securities are those imposed by regulatory authorities where the security is issued. For example, securities issued

Figure 1 Classification of Global Financial Markets



by non-U.S. corporations in the United States must comply with the regulations set forth in U.S. securities law. A non-Japanese corporation that seeks to offer securities in Japan must comply with Japanese securities law and regulations imposed by the Japanese Ministry of Finance. Nicknames have developed to describe the various foreign markets. For example, the foreign market in the United States is called the *Yankee market.* The foreign market in Japan is nicknamed the *Samurai market*, in the United Kingdom the *Bulldog market*, in the Netherlands the *Rembrandt market*, and in Spain the *Matador market.*

The **external market**, also called the **international market**, allows trading of securities with two distinguishing features: (1) at issuance securities are offered simultaneously to investors in a number of countries, and (2) they are issued outside the jurisdiction of any single country. The external market is commonly referred to as the **offshore market**, or, more popularly, the **Euromarket.**[1]

Motivation for Using Foreign Markets and Euromarkets

There are several reasons why a corporation may seek to raise funds outside its domestic market. First, in some countries, large corporations seeking to raise a substantial amount of funds may have no choice but to obtain financing in either the foreign market sector of another country or the Euromarket. This is because the fund-seeking corporation's domestic market is not fully developed and cannot satisfy its demand for funds on globally competitive terms. Governments of developing countries have used these markets in seeking funds for government-owned corporations that they are privatizing.

The second reason is that there may be opportunities for obtaining a lower cost of funding than is available in the domestic market, although with the integration of capital markets throughout the world, such opportunities have diminished. Nevertheless, there are still some imperfections in capital markets throughout the world that may permit a reduced cost of funds. The causes of these imperfections are discussed throughout the book. A final reason for using foreign or Euromarkets is a desire by issuers to diversify their source of funding so as to reduce reliance on domestic investors.

Key Points That You Should Understand Before Proceeding

1. The three major factors that have integrated financial markets throughout the world.
2. What is meant by the institutionalization of financial markets.
3. What is meant by an internal market (or national market), domestic market, foreign market, and external market (or international market, offshore market, or Euromarket).
4. The motivations for U.S. corporations to raise money outside the United States.

DERIVATIVE MARKETS

So far we have focused on the cash market for financial assets. With some contracts, the contract holder has either the obligation or the choice to buy or sell a financial asset at some future time. The price of any such contract derives its value from the value of the

[1] The classification we use is by no means universally accepted. Some market observers and compilers of statistical data on market activity refer to the external market as consisting of the foreign market and the Euromarket.

underlying financial asset, financial index, or interest rate. Consequently, these contracts are called **derivative instruments**.

Types of Derivative Instruments

The two basic types of derivative instruments are *futures/forward contracts* and *options contracts*. A futures or forward contract is an agreement whereby two parties agree to transact with respect to some financial asset at a predetermined price at a specified future date. One party agrees to buy the financial asset; the other agrees to sell the financial asset. Both parties are obligated to perform, and neither party charges a fee.

An options contract gives the owner of the contract the right, but not the obligation, to buy (or sell) a financial asset at a specified price from (or to) another party. The buyer of the contract must pay the seller a fee, which is called the option price. When the option grants the owner of the option the right to buy a financial asset from the other party, the option is called a **call option**. If, instead, the option grants the owner of the option the right to sell a financial asset to the other party, the option is called a **put option**.

Derivative instruments are not limited to financial assets. There are derivative instruments involving commodities and precious metals. Our focus, however, is on derivative instruments where the underlying asset is a financial asset, or some financial benchmark such as a stock index or an interest rate, a credit spread, or foreign exchange. Moreover, there are other types of derivative instruments that are basically "packages" of either forward contracts or option contracts. These include swaps, caps, and floors.

The Role of Derivative Instruments

Derivative contracts provide issuers and investors an inexpensive way of controlling some major risks. Here are three examples that clearly illustrate the need for derivative contracts:

1. Suppose that Verizon Communications plans to obtain a bank loan for $100 million two months from now. The key risk here is that two months from now the interest rate will be higher than it is today. If the interest rate is only one percentage point higher, Verizon Communications would have to pay $1 million more in annual interest. Clearly, then, issuers and borrowers want a way to protect against a rise in interest rates.
2. IBM pension fund owns a portfolio consisting of the common stock of a large number of companies. Suppose the pension fund knows that two months from now it must sell stock in its portfolio to pay beneficiaries $20 million. The risk that IBM pension fund faces is that two months from now when the stocks are sold, the price of most or all stocks may be lower than they are today. If stock prices do decline, the pension fund will have to sell off more shares to realize $20 million. Thus, investors, such as the IBM pension fund, face the risk of declining stock prices and may want to protect against this risk.
3. Suppose Sears, Roebuck plans to issue a bond in Switzerland and the periodic payments that the company must make to the bondholders are denominated in the Swiss currency, the franc. The amount of U.S. dollars that Sears must pay to receive the

amount of Swiss francs it has contracted to pay will depend on the exchange rate at the time the payment must be made. For example, suppose that at the time Sears plans to issue the bonds, the exchange rate is such that 1 U.S. dollar is equal to 1.5 Swiss francs. So, for each 7.5 million Swiss francs that Sears must pay to the bondholders, it must pay U.S. $5 million. If at any time that a payment must be made in Swiss francs, the value of the U.S. dollar declines relative to the Swiss franc, Sears will have to pay more U.S. dollars to satisfy its contractual obligation. For example, if 1 U.S. dollar at the time of a payment changes to 1.25 Swiss francs, Sears would have to pay $6 million to make a payment of 7.5 million Swiss francs. This is U.S. $1 million more than when it issued the bonds. Issuers and borrowers who raise funds in a currency that is not their local currency face this risk.

The derivative instruments that can be used by the two borrowers (Verizon Communications and Sears, Roebuck) and the one investor (IBM pension fund) in these examples to eliminate or to reduce the kinds of risks that they face.

Derivative markets may have at least three advantages over the corresponding cash (spot) market for the same financial asset. First, depending on the derivative instrument, it may cost less to execute a transaction in the derivatives market in order to adjust the risk exposure of an investor's portfolio to new economic information than it would cost to make that adjustment in the cash market. Second, transactions typically can be accomplished faster in the derivatives market. Third, some derivative markets can absorb a greater dollar transaction without an adverse effect on the price of the derivative instrument; that is, the derivative market may be more liquid than the cash market.

The key point here is that derivative instruments play a critical role in global financial markets. A May 1994 report published by the U.S. General Accounting Office (GAO) titled *Financial Derivatives: Actions Needed to Protect the Financial System* recognized the importance of derivatives for market participants. Page 6 of the report states:

> Derivatives serve an important function of the global financial marketplace, providing end-users with opportunities to better manage financial risks associated with their business transactions. The rapid growth and increasing complexity of derivatives reflect both the increased demand from end-users for better ways to manage their financial risks and the innovative capacity of the financial services industry to respond to market demands.

Unfortunately, derivative markets are too often viewed by the general public—and sometimes regulators and legislative bodies—as vehicles for pure speculation (that is, legalized gambling). Without derivative instruments and the markets in which they trade, the financial systems throughout the world would not be as integrated as they are today.

Key Points That You Should Understand Before Proceeding

1. The two basic types of derivative instruments: futures/forward contracts and options.
2. The principal economic role of derivative instruments.
3. The potential advantages of using derivative instruments rather than cash market instruments.

THE ROLE OF THE GOVERNMENT IN FINANCIAL MARKETS

Because of the prominent role played by financial markets in economies, governments have long deemed it necessary to regulate certain aspects of these markets. In their regulatory capacities, governments have greatly influenced the development and evolution of financial markets and institutions. As stated in a March 31, 2008, speech by Henry M. Paulson, Jr., Secretary of the U.S. Department of the Treasury:[2]

> A strong financial system is vitally important—not for Wall Street, not for bankers, but for working Americans. When our markets work, people throughout our economy benefit—Americans seeking to buy a car or buy a home, families borrowing to pay for college, innovators borrowing on the strength of a good idea for a new product or technology, and businesses financing investments that create new jobs. And when our financial system is under stress, millions of working Americans bear the consequences. Government has a responsibility to make sure our financial system is regulated effectively. And in this area, we can do a better job. In sum, the ultimate beneficiaries from improved financial regulation are America's workers, families and businesses—both large and small.

It is important to realize that governments, markets, and institutions tend to behave interactively and to affect one another's actions in certain ways. Thus, it is not surprising to find that a market's reactions to regulations often prompt a new response by the government, which can cause the institutions participating in a market to change their behavior further, and so on. A sense of how the government can affect a market and its participants is important to an understanding of the numerous markets and securities to be described in the chapters to come. For that reason, we briefly describe the regulatory function here.

Because of differences in culture and history, different countries regulate financial markets and financial institutions in varying ways, emphasizing some forms of regulation more than others. Here we will discuss the different types of regulation, the motivation for regulation, and the basic U.S. regulatory structure.

Justification for Regulation

The standard explanation or justification for governmental regulation of a market is that the market, left to itself, will not produce its particular goods or services in an efficient manner and at the lowest possible cost. Of course, efficiency and low-cost production are hallmarks of a perfectly competitive market. Thus, a market unable to produce efficiently must be one that is not competitive at the time, and that will not gain that status by itself in the foreseeable future. Of course, it is also possible that governments may regulate markets that are viewed as competitive currently but unable to sustain competition, and thus low-cost production, over the long run. A version of this justification for regulation is that the government controls a feature of the economy that the market mechanisms of competition and pricing could not manage without help. A shorthand expression economists use to

[2] It is in this speech that Secretary Paulson introduced what is known as the "Blueprint for Regulatory Reform" that we will describe shortly.

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describe the reasons for regulation is **market failure.** A market is said to fail if it cannot, by itself, maintain all the requirements for a competitive situation.

Governments in most developed economies have created elaborate systems of regulation for financial markets, in part because the markets themselves are complex and in part because financial markets are so important to the general economies in which they operate. The numerous rules and regulations are designed to serve several purposes, which fall into the following categories:

1. to prevent issuers of securities from defrauding investors by concealing relevant information
2. to promote competition and fairness in the trading of financial securities
3. to promote the stability of financial institutions
4. to restrict the activities of foreign concerns in domestic markets and institutions
5. to control the level of economic activity

Corresponding to each of these categories is an important form of regulation. We discuss each form in turn.

Disclosure regulation is the form of regulation that requires issuers of securities to make public a large amount of financial information to actual and potential investors. The standard justification for disclosure rules is that the managers of the issuing firm have more information about the financial health and future of the firm than investors who own or are considering the purchase of the firm's securities. The cause of market failure here, if indeed it occurs, is commonly described as **asymmetric information,** which means investors and managers have uneven access to or uneven possession of information. This is referred to as the **agency problem,** in the sense that the firm's managers, who act as agents for investors, may act in their own interests to the disadvantage of the investors. The advocates of disclosure rules say that, in the absence of the rules, the investors' comparatively limited knowledge about the firm would allow the agents to engage in such practices.

Financial activity regulation consists of rules about traders of securities and trading on financial markets. A prime example of this form of regulation is the set of rules against trading by corporate insiders who are corporate officers and others in positions to know more about a firm's prospects than the general investing public. Insider trading is another problem posed by asymmetric information, which is of course inconsistent with a competitive market. A second example of this type of regulation would be rules regarding the structure and operations of exchanges where securities are traded so as to minimize the risk of defrauding the general investing public.

Regulation of financial institutions is the form of governmental monitoring that restricts these institutions' activities in the vital areas of lending, borrowing, and funding. The justification for this form of government regulation is that these financial firms have a special role to play in a modern economy. Financial institutions help households and firms to save; they also facilitate the complex payments among many elements of the economy; and in the case of commercial banks, they serve as conduits for the government's monetary policy. Thus, it is often argued that the failure of these financial institutions would disturb the economy in a severe way.

Regulation of foreign participants is the form of governmental activity that limits the roles foreign firms can have in domestic markets and their ownership or control of financial institutions.

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Authorities use **banking and monetary regulation** to try to control changes in a country's money supply, which is thought to control the level of economic activity.

These types of governmental regulation of markets and financial institutions are mentioned here briefly in order to provide a comprehensive picture of the government's role in modern financial systems.

Regulation in the United States

The regulatory structure in the United States is largely the result of financial crises that have occurred at various times. Most regulations are the products of the stock market crash of 1929 and the Great Depression in the 1930s. Some of the regulations may make little economic sense in the current financial market, but they can be traced back to some abuse that legislators encountered, or thought they encountered, at one time. In fact, as noted by Secretary Paulson in his March 31, 2008, speech:

> Our current regulatory structure was not built to address the modern financial system with its diversity of market participants, innovation, complexity of financial instruments, convergence of financial intermediaries and trading platforms, global integration and interconnectedness among financial institutions, investors and markets. Moreover, our financial services companies are becoming larger, more complex and more difficult to manage. Much of our current regulatory system was developed after the Great Depression and it has developed through reaction—a pattern of creating regulators as a response to market innovations or to market stress.

The current regulatory system in the United States is based on an array of industry- and market-focused regulators. Again, we will discuss the complex array of regulation when we describe the various financial institutions and financial markets. A proposal by the U.S. Department of the Treasury, popularly referred to as the "Blueprint for Regulatory Reform" or simply Blueprint, would replace the prevailing complex array of regulators with a regulatory system based on functions. More specifically, there would be three regulators: (1) a market stability regulator, (2) a prudential regulator, and (3) a business conduct regulator. The market stability regulator would take on the traditional role of the Federal Reserve by giving it the responsibility and authority to ensure overall financial market stability. The Federal Reserve would be responsible for monitoring risks across the financial system. The prudential regulator would be charged with safety and soundness of firms with federal guarantees that we will describe in this book such as federal depository insurance and housing guarantees. The business conduct regulator would regulate business conduct across all types of financial firms. This regulator would take on most of the roles that the Securities and Exchange Commission and the Commodity Futures Trading Commission now have.

This change in regulatory structure is the long-term recommendation of the Blueprint. This may not occur for 10 or 15 years, if at all. If history is our guide, major regulatory changes do take that long to become legislation. For example, there is the major regulatory reform as of this writing: the Gramm-Leach-Bliley Act 1999. According to one source, portions of that legislation were first recommended by a special commission of the Reagan administration in the early to mid 1980s.

Key Points That You Should Understand Before Proceeding

1. The standard explanation for governmental regulation of markets for goods and services.
2. What is being sought by regulation.
3. The major forms of regulation.
4. The "Blueprint for Regulatory Reform" proposed by the U.S. Department of the Treasury.

FINANCIAL INNOVATION

Categorizations of Financial Innovation

Since the 1960s, there has been a surge in significant financial innovations. Observers of financial markets have categorized these innovations in different ways. Here are just three ways suggested to classify these innovations.

The Economic Council of Canada classifies financial innovations into the following three broad categories:[3]

- *market-broadening instruments,* which increase the liquidity of markets and the availability of funds by attracting new investors and offering new opportunities for borrowers
- *risk-management instruments,* which reallocate financial risks to those who are less averse to them, or who have offsetting exposure and thus are presumably better able to shoulder them
- *arbitraging instruments and processes,* which enable investors and borrowers to take advantage of differences in costs and returns between markets, and which reflect differences in the perception of risks, as well as in information, taxation, and regulations

Another classification system of financial innovations based on more specific functions has been suggested by the Bank for International Settlements: *price-risk-transferring innovations, credit-risk-transferring instruments, liquidity-generating innovations, credit-generating instruments,* and *equity-generating instruments.*[4] Price-risk-transferring innovations are those that provide market participants with more efficient means for dealing with price or exchange-rate risk. Reallocating the risk of default is the function of credit-risk-transferring instruments. Liquidity-generating innovations do three things: (1) They increase the liquidity of the market, (2) they allow borrowers to draw upon new sources of funds, and (3) they allow market participants to circumvent capital constraints imposed by regulations. Instruments to increase the amount of debt funds available to borrowers and to increase the capital base of financial and nonfinancial institutions are the functions of credit-generating and equity-generating innovations, respectively.

Finally, Professor Stephen Ross suggests two classes of financial innovation: (1) new financial products (financial assets and derivative instruments) better suited to the circumstances of

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[3] *Globalization and Canada's Financial Markets* (Ottawa, Canada: Supply and Services Canada, 1989), p. 32.

[4] Bank for International Settlements, *Recent Innovations in International Banking* (Basle: BIS, April 1986).

the time (for example, to inflation) and to the markets in which they trade, and (2) strategies that primarily use these financial products.[5]

For now, let's look at why financial innovation takes place.

Motivation for Financial Innovation

There are two extreme views of financial innovation.[6] There are some who believe that the major impetus for innovation has been the endeavor to circumvent (or **arbitrage**) regulations and find loopholes in tax rules.[7] At the other extreme, some hold that the essence of innovation is the introduction of financial instruments that are more efficient for redistributing risks among market participants.

It would appear that many of the innovations that have passed the test of time and have not disappeared have been innovations that provided more efficient mechanisms for redistributing risk. Other innovations may just represent a more efficient way of doing things. Indeed, if we consider the ultimate causes of financial innovation,[8] the following emerge as the most important:

1. increased volatility of interest rates, inflation, equity prices, and exchange rates
2. advances in computer and telecommunication technologies
3. greater sophistication and educational training among professional market participants
4. financial intermediary competition
5. incentives to get around existing regulation and tax laws
6. changing global patterns of financial wealth

With increased volatility comes the need for certain market participants to protect themselves against unfavorable consequences. This means new or more efficient ways of risk sharing in the financial market are needed. Many of the financial products require the use of computers to create and monitor them. To implement trading strategies using these financial products also requires computers, as well as telecommunication and Internet networks. Without advances in computer and telecommunication technologies, some innovations would not have been possible. Although financial products and trading strategies created by some market participants may be too complex for other market participants to use, the level of market sophistication, particularly in terms of mathematical understanding, has risen, permitting the acceptance of some complex products and trading strategies.

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[5] Stephen A. Ross, "Institutional Markets, Financial Marketing, and Financial Innovation," *Journal of Finance* (July 1989), p. 541.

[6] Ian Cooper, "Financial Innovations: New Market Instruments," *Oxford Review of Economic Policy* (November 1986).

[7] Merton H. Miller, "Financial Innovation: The Last Twenty Years and the Next," *Journal of Financial and Quantitative Analysis* (December 1986), pp. 459–471.

[8] Cooper, "Financial Innovations," see Table 9. We add inflation to the first category described.

Key Points That You Should Understand Before Proceeding

1. The extent of the innovation in many financial markets, securities, and institutions over the last few decades.
2. The causes of innovation, such as the high level of volatility in prices and interest rates, the arrival of technology, the new intensity of competition, and the globalization of markets and institutions.

SUMMARY

In this chapter, we have explained the role of financial assets and financial markets. A financial asset (or financial instrument or security) entitles the owner to future cash flows to be paid by the issuer as well as to the liquidation value of the asset. The claim can be either an equity or debt claim. The price of any financial asset is equal to the present value of the cash flow expected. Because of uncertainty about the cash flow, in nominal and inflation-adjusted dollars, there is risk in investing in financial assets.

The two principal economic functions of a financial asset are (1) transferring funds from those who have surplus funds to invest to those who need funds to invest in tangible assets, and (2) transferring funds in such a way that redistributes the unavoidable risk associated with the cash flow generated by tangible assets among those seeking and those providing the funds.

Financial markets provide the following three additional functions beyond that of financial assets themselves: (1) they provide a mechanism for determining the price (or, equivalently, the required return) of financial assets, (2) they make assets more liquid, and (3) they reduce the costs of exchanging assets. The costs associated with transacting are search costs and information costs.

There are various ways to classify financial markets: money (or short-term) versus capital markets, debt versus equity markets, primary versus secondary markets, and cash versus derivative markets. Another classification is based on the type of organizational structure: auction versus over-the-counter versus intermediated markets.

The increased integration of financial markets throughout the world can be attributed to three factors: (1) deregulation or liberalization of major financial markets (market deregulation and institutional deregulation), (2) advances in telecommunications and computer technologies, and (3) institutionalization of financial markets. Global financial markets can be classified as the national market of a country, consisting of the domestic market and foreign market, and the external market (overseas or Euromarket).

A derivative instrument is a contract whose value depends on the value of the underlying financial asset. The chief economic function of a derivative instrument is to provide ways to control risk. Derivative markets may offer three advantages over cash markets: (1) lower transaction costs, (2) faster speed at which transactions can be completed, and (3) greater liquidity.

Regulation of the financial system and its various component sectors occurs in almost all countries. A useful way to organize the many instances of regulation is to see it as having four general forms: (1) enforcing the disclosure of relevant information, (2) regulating the level of financial activity through control of the money supply as well as trading in financial

markets, (3) restricting the activities of financial institutions and their management of assets and liabilities, and (4) constraining the freedom of foreign investors and securities firms in domestic markets. The U.S. Department of the Treasury has proposed a major revamping of the regulatory system.

Financial innovation has increased dramatically since the 1960s, particularly in the late 1970s. While financial innovation can be the result of arbitrary regulations and tax rules, innovations that persist after regulations or tax rules have been changed to prevent exploitation are frequently those that have provided a more efficient means for redistributing risk.

KEY TERMS

- Agency problem
- Arbitrage
- Asset
- Asymmetric information
- Banking and monetary regulation
- Call option
- Capital market
- Competitive market
- Credit risk (default risk)
- Debt instrument
- Derivative instrument
- Disclosure regulation
- Domestic market
- Equity instrument (residual claim)
- External market (international market, offshore market, Euromarket)
- Financial activity regulation
- Financial asset
- Financial market
- Fixed-income instrument
- Foreign-exchange risk
- Foreign market
- Information costs
- Internal market (national market)
- Market failure
- Money market
- Price discovery process
- Purchasing power risk (inflation risk)
- Put option
- Regulation of financial institutions
- Regulation of foreign participants
- Search costs
- Secondary market
- Spot market (cash market)
- Tangible asset

QUESTIONS

1. What is the difference between a financial asset and a tangible asset?
2. What is the difference between the claim of a debtholder of General Motors and an equityholder of General Motors?
3. What is the basic principle in determining the price of a financial asset?
4. Why is it difficult to determine the cash flow of a financial asset?
5. Why are the characteristics of an issuer important in determining the price of a financial asset?
6. What are the two principal roles of financial assets?
7. In September 1990, a study by the U.S. Congress, Office of Technology Assessment, entitled "Electronic Bulls & Bears: U.S. Securities Markets and Information Technology," included this statement:

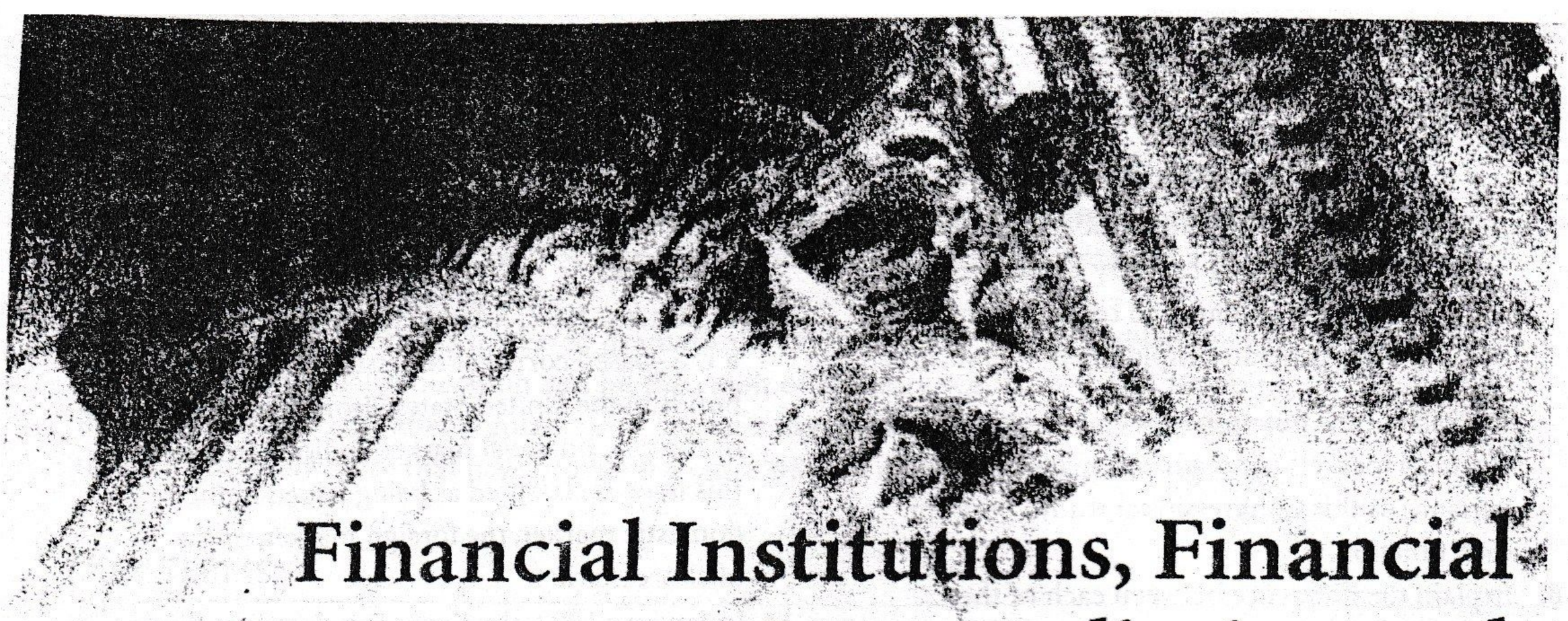
   > Securities markets have five basic functions in a capitalistic economy:
   >
   > **a.** They make it possible for corporations and governmental units to raise capital.
   >
   > **b.** They help to allocate capital toward productive uses.
   >
   > **c.** They provide an opportunity for people to increase their savings by investing in them.

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d. They reveal investors' judgments about the potential earning capacity of corporations, thus giving guidance to corporate managers.
e. They generate employment and income.

For each of the functions cited above, explain how financial markets (or securities markets, in the parlance of this Congressional study) perform each function.

8. Explain the difference between each of the following:
   a. money market and capital market
   b. primary market and secondary market
   c. domestic market and foreign market
   d. national market and Euromarket
9. Indicate whether each of the following instruments trades in the money market or the capital market:
   a. General Motors Acceptance Corporation issues a financial instrument with four months to maturity.
   b. The U.S. Treasury issues a security with 10 years to maturity.
   c. Microsoft Corporation issues common stock.
   d. The State of Alaska issues a financial instrument with eight months to maturity.
10. A U.S. investor who purchases the bonds issued by the government of France made the following comment: "Assuming that the French government does not default, I know what the cash flow of the bond will be." Explain why you agree or disagree with this statement.
11. A U.S. investor who purchases the bonds issued by the U.S. government made the following statement: "By buying this debt instrument I am not exposed to default risk or purchasing power risk." Explain why you agree or disagree with this statement.
12. In January 1992, Atlantic Richfield Corporation, a U.S.-based corporation, issued $250 million of bonds in the United States. From the perspective of the U.S. financial market, indicate whether this issue is classified as being issued in the domestic market, the foreign market, or the offshore market.
13. In January 1992, the Korea Development Bank issued $500 million of bonds in the United States. From the perspective of the U.S. financial market, indicate whether this issue is classified as being issued in the domestic market, the foreign market, or the offshore market.
14. Give three reasons for the trend toward greater integration of financial markets throughout the world.
15. What is meant by the "institutionalization" of capital markets?
16. a. What are the two basic types of derivative instruments?
    b. "Derivative markets are nothing more than legalized gambling casinos and serve no economic function." Comment on this statement.
17. What is the economic rationale for the widespread use of disclosure regulation?
18. What is meant by market failure?
19. What is the major long-term regulatory reform that the U.S. Department of the Treasury has proposed?
20. Why does increased volatility in financial markets with respect to the price of financial assets, interest rates, and exchange rates foster financial innovation?



Financial Institutions, Financial Intermediaries, and Asset Management Firms

LEARNING OBJECTIVES

After reading this chapter, you will understand

- the business of financial institutions
- the role of financial intermediaries
- the difference between direct and indirect investments
- how financial intermediaries transform the maturity of liabilities and give both short-term depositors and longer-term, final borrowers what they want
- how financial intermediaries offer investors diversification and so reduce the risks of their investments
- the way financial intermediaries reduce the costs of acquiring information and entering into contracts with final borrowers of funds
- how financial intermediaries enjoy economies of scale in processing payments from final users of funds
- the nature of the management of assets and liabilities by financial intermediaries
- how different financial institutions have differing degrees of knowledge and certainty about the amount and timing of the cash outlay of their liabilities
- why financial institutions have liquidity concerns
- concerns regulators have with financial institutions
- the general characteristics of asset management firms
- the types of funds that asset management firms manage
- what a hedge fund is and the different types of hedge funds

Financial Institutions, Financial Intermediaries, and Asset Management Firms

From Chapter 2 of *Foundations of Financial Markets and Institutions*, 4/e. Frank J. Fabozzi. Franco Modigliani. Frank J. Jones
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In this chapter, we discuss financial institutions and a special and important type of financial institution, a financial intermediary. Financial intermediaries include commercial banks, savings and loan associations, investment companies, insurance companies, and pension funds. The most important contribution of financial intermediaries is a steady and relatively inexpensive flow of funds from savers to final users or investors. Every modern economy has financial intermediaries, which perform key financial functions for individuals, households, corporations, small and new businesses, and governments. In the last part of this chapter, we provide an overview of the organizations that manage funds for financial intermediaries as well as individual investors: asset management firms.

FINANCIAL INSTITUTIONS

Business entities include nonfinancial and financial enterprises. Nonfinancial enterprises manufacture products (e.g., cars, steel, computers) and/or provide nonfinancial services (e.g., transportation, utilities, computer programming). Financial enterprises, more popularly referred to as **financial institutions**, provide services related to one or more of the following:

1. Transforming financial assets acquired through the market and constituting them into a different, and more widely preferable, type of asset—which becomes their liability. This is the function performed by **financial intermediaries**, the most important type of financial institution.
2. exchanging of financial assets on behalf of customers
3. exchanging of financial assets for their own accounts
4. assisting in the creation of financial assets for their customers, and then selling those financial assets to other market participants
5. providing investment advice to other market participants
6. managing the portfolios of other market participants

Financial intermediaries include **depository institutions** (commercial banks, savings and loan associations, savings banks, and credit unions), which acquire the bulk of their funds by offering their liabilities to the public mostly in the form of deposits; insurance companies (life and property and casualty companies); pension funds; and finance companies.

The second and third services in the list above are the broker and dealer functions. The fourth service is referred to as underwriting. Typically a financial institution that provides an underwriting service also provides a brokerage and/or dealer service.

Some nonfinancial enterprises have subsidiaries that provide financial services. For example, many large manufacturing firms have subsidiaries that provide financing for the parent company's customer. These financial institutions are called *captive finance companies*. Examples include General Motors Acceptance Corporation (a subsidiary of General Motors) and General Electric Credit Corporation (a subsidiary of General Electric).

Key Points That You Should Understand Before Proceeding

1. The services provided by financial institutions.
2. The special role played by a financial intermediary when it transforms assets acquired from customers or the market into its own liabilities.

ROLE OF FINANCIAL INTERMEDIARIES

As we have seen, financial intermediaries obtain funds by issuing financial claims against themselves to market participants, and then investing those funds. The investments made by financial intermediaries—their assets—can be in loans and/or securities. These investments are referred to as **direct investments.** Market participants who hold the financial claims issued by financial intermediaries are said to have made **indirect investments.**

Two examples will illustrate this. Most readers of this book are familiar with what a **commercial bank** does. Commercial banks accept deposits and may use the proceeds to lend funds to consumers and businesses. The deposits represent the IOU of the commercial bank and a financial asset owned by the depositor. The loan represents an IOU of the borrowing entity and a financial asset of the commercial bank. The commercial bank has made a direct investment in the borrowing entity; the depositor effectively has made an indirect investment in that borrowing entity.

As a second example, consider an **investment company** which pools the funds of market participants and uses those funds to buy a portfolio of securities such as stocks and bonds. Investment companies are more commonly referred to as "mutual funds." Investors providing funds to the investment company receive an equity claim that entitles the investor to a pro rata share of the outcome of the portfolio. The equity claim is issued by the investment company. The **portfolio** of financial assets acquired by the investment company represents a direct investment that it has made. By owning an equity claim against the investment company, those who invest in the investment company have made an indirect investment.

We have stressed that financial intermediaries play the basic role of transforming financial assets that are less desirable for a large part of the public into other financial assets—their own liabilities—which are more widely preferred by the public. This transformation involves at least one of four economic functions: (1) providing maturity intermediation, (2) reducing risk via diversification, (3) reducing the costs of contracting and information processing, and (4) providing a payments mechanism. Each function is described below.

Maturity Intermediation

In our example of the commercial bank, two things should be noted. First, the maturity of at least a portion of the deposits accepted is typically short term. For example, certain types of deposit are payable upon demand. Others have a specific maturity date, but most are less than two years. Second, the maturity of the loans made by a commercial bank may be considerably longer than two years. In the absence of a commercial bank, the borrower would have to borrow for a shorter term, or find an entity that is willing to invest for the length of the loan sought, and/or investors who make deposits in the bank would have to commit funds for a longer length of time than they want. The commercial bank, by issuing its own financial claims, in essence transforms a longer-term asset into a shorter-term one by giving the borrower a loan for the length of time sought and the investor/depositor a financial asset for the desired investment horizon. This function of a financial intermediary is called **maturity intermediation.**

Maturity intermediation has two implications for financial markets. First, it provides investors with more choices concerning maturity for their investments; borrowers have more choices for the length of their debt obligations. Second, because investors are naturally

reluctant to commit funds for a long period of time, they will require that long-term borrowers pay a higher interest rate than on short-term borrowing. A financial intermediary is willing to make longer-term loans, and at a lower cost to the borrower than an individual investor would, by counting on successive deposits providing the funds until maturity (although at some risk—see below). Thus, the second implication is that the cost of longer-term borrowing is likely to be reduced.

Reducing Risk via Diversification

Consider the example of the investor who places funds in an investment company. Suppose that the investment company invests the funds received in the stock of a large number of companies. By doing so, the investment company has diversified and reduced its risk. Investors who have a small sum to invest would find it difficult to achieve the same degree of **diversification** because they do not have sufficient funds to buy shares of a large number of companies. Yet, by investing in the investment company for the same sum of money, investors can accomplish this diversification, thereby reducing risk.

This economic function of financial intermediaries—transforming more risky assets into less risky ones—is called *diversification*. Although individual investors can do it on their own, they may not be able to do it as cost-effectively as a financial intermediary, depending on the amount of funds they have to invest. Attaining cost-effective diversification in order to reduce risk by purchasing the financial assets of a financial intermediary is an important economic benefit for financial markets.

Reducing the Costs of Contracting and Information Processing

Investors purchasing financial assets should take the time to develop skills necessary to understand how to evaluate an investment. Once those skills are developed, investors should apply them to the analysis of specific financial assets that are candidates for purchase (or subsequent sale). Investors who want to make a loan to a consumer or business will need to write the loan contract (or hire an attorney to do so).

Although there are some people who enjoy devoting leisure time to this task, most prefer to use that time for just that—leisure. Most of us find that leisure time is in short supply, so to sacrifice it, we have to be compensated. The form of compensation could be a higher return that we obtain from an investment.

In addition to the opportunity cost of the time to process the information about the financial asset and its issuer, there is the cost of acquiring that information. All these costs are called *information processing costs*. The costs of writing loan contracts are referred to as **contracting costs**. There is also another dimension to contracting costs, the cost of enforcing the terms of the loan agreement.

With this in mind, consider our two examples of financial intermediaries—the commercial bank and the investment company. People who work for these intermediaries include investment professionals who are trained to analyze financial assets and manage them. In the case of loan agreements, either standardized contracts can be prepared, or legal counsel can be part of the professional staff that writes contracts involving more complex transactions. The investment professionals can monitor compliance with the terms of the loan agreement and take any necessary action to protect the interests of the financial intermediary. The employment of such professionals is cost-effective for financial intermediaries because investing funds is their normal business.

In other words, there are economies of scale in contracting and processing information about financial assets because of the amount of funds managed by financial intermediaries. The lower costs accrue to the benefit of the investor who purchases a financial claim of the financial intermediary and to the issuers of financial assets, who benefit from a lower borrowing cost.

Providing a Payments Mechanism

Although the previous three economic functions may not have been immediately obvious, this last function should be. Most transactions made today are not done with cash. Instead, payments are made using checks, credit cards, debit cards, and electronic transfers of funds. These methods for making payments, called **payment mechanisms**, are provided by certain financial intermediaries.

At one time, noncash payments were restricted to checks written against non–interest-bearing accounts at commercial banks. Similar check writing privileges were provided later by savings and loan associations and savings banks, and by certain types of investment companies. Payment by credit card was also at one time the exclusive domain of commercial banks, but now other depository institutions offer this service. Debit cards are offered by various financial intermediaries. A debit card differs from a credit card in that, in the latter case, a bill is sent to the credit card holder periodically (usually once a month) requesting payment for transactions made in the past. In the case of a **debit card**, funds are immediately withdrawn (that is, debited) from the purchaser's account at the time the transaction takes place.

The ability to make payments without the use of cash is critical for the functioning of a financial market. In short, depository institutions transform assets that cannot be used to make payments into other assets that offer that property.

Key Points That You Should Understand Before Proceeding

1. The difference between a direct investment and an indirect investment.
2. How a financial institution intermediates among investors and borrowers in the area of maturity, reduces risk and offers diversification, reduces the costs of contracting and information processing, and provides payment mechanisms.

OVERVIEW OF ASSET/LIABILITY MANAGEMENT FOR FINANCIAL INSTITUTIONS

To understand the reasons managers of financial institutions invest in particular types of financial assets and the types of investment strategies they employ, it is necessary to have a general understanding of the asset/liability problem faced. In this section, we provide an overview of **asset/liability management.**

The nature of the liabilities dictates the investment strategy a financial institution will pursue. For example, depository institutions seek to generate income by the spread between the return that they earn on assets and the cost of their funds. That is, they buy money and sell money. They buy money by borrowing from depositors or other sources of

funds. They sell money when they lend it to businesses or individuals. In essence, they are spread businesses. Their objective is to sell money for more than it costs to buy money. The cost of the funds and the return on the funds sold is expressed in terms of an interest rate per unit of time. Consequently, the objective of a depository institution is to earn a positive *spread* between the assets it invests in (what it has sold the money for) and the costs of its funds (what it has purchased the money for).

Life insurance companies—and, to a certain extent, property and casualty insurance companies—are in the spread business. Pension funds are not in the spread business in that they do not raise funds themselves in the market. They seek to cover the cost of pension obligations at a minimum cost that is borne by the sponsor of the pension plan. Investment companies face no explicit costs for the funds they acquire and must satisfy no specific liability obligations; one exception is a particular type of investment company that agrees to repurchase shares at any time.

Nature of Liabilities

By the liabilities of a financial institution, we mean the amount and timing of the cash outlays that must be made to satisfy the contractual terms of the obligations issued. The liabilities of any financial institution can be categorized according to four types as shown in Table 1. The categorization in the table assumes that the entity that must be paid the obligation will not cancel the financial institution's obligation prior to any actual or projected payout date.

The descriptions of cash outlays as either known or uncertain are undoubtedly broad. When we refer to a cash outlay as being uncertain, we do not mean that it cannot be predicted. There are some liabilities where the "law of large numbers" makes it easier to predict the timing and/or amount of cash outlays. This is the work typically done by actuaries, but of course even actuaries cannot predict natural catastrophes such as floods and earthquakes.

Keep these risk categories in mind. For now, let's illustrate each one.

Type-I Liabilities

Both the amount and the timing of the liabilities are known with certainty. A liability requiring a financial institution to pay $50,000 six months from now would be an example. For example, depository institutions know the amount that they are committed to pay (principal plus interest) on the maturity date of a fixed-rate deposit, assuming that the depositor does not withdraw funds prior to the maturity date.

Table 1 Nature of Liabilities of Financial Institutions

Liability Type	Amount of Cash Outlay	Timing of Cash Outlay
Type I	Known	Known
Type II	Known	Uncertain
Type III	Uncertain	Known
Type IV	Uncertain	Uncertain

Type-I liabilities, however, are not limited to depository institutions. A major product sold by life insurance companies is a **guaranteed investment contract**, popularly referred to as a GIC. The obligation of the life insurance company under this contract is that, for a sum of money (called a premium), it will guarantee an interest rate up to some specified maturity date.[1] For example, suppose a life insurance company for a premium of $10 million issues a five-year GIC agreeing to pay 10% compounded annually. The life insurance company knows that it must pay $16.11 million to the GIC policyholder in five years.[2]

Type-II Liabilities

The amount of cash outlay is known, but the timing of the cash outlay is uncertain. The most obvious example of a Type-II liability is a life insurance policy. There are many types of life insurance policies, but the most basic type is that, for an annual premium, a life insurance company agrees to make a specified dollar payment to policy beneficiaries upon the death of the insured.

Type-III Liabilities

With this type of liability, the timing of the cash outlay is known, but the amount is uncertain. An example is where a financial institution has issued an obligation in which the interest rate adjusts periodically according to some interest rate benchmark. Depository institutions, for example, issue accounts called **certificates of deposit (CD)**, which have a stated maturity. The interest rate paid need not be fixed over the life of the deposit but may fluctuate. If a depository institution issues a three-year floating-rate certificate of deposit that adjusts every three months and the interest rate paid is the three-month Treasury bill rate plus one percentage point, the depository institution knows it has a liability that must be paid off in three years, but the dollar amount of the liability is not known. It will depend on three-month Treasury bill rates over the three years.

Type-IV Liabilities

There are numerous insurance products and pension obligations that present uncertainty as to both the amount and the timing of the cash outlay. Probably the most obvious examples are automobile and home insurance policies issued by property and casualty insurance companies. When, and if, a payment will have to be made to the policyholder is uncertain. Whenever damage is done to an insured asset, the amount of the payment that must be made is uncertain.

Sponsors of pension plans can agree to various types of pension obligations to the beneficiaries of the plan. There are plans where retirement benefits depend on the participant's income for a specified number of years before retirement and the total number of years the participant worked. This will affect the amount of the cash outlay. The timing of the cash outlay depends on when the employee elects to retire, and whether or not the employee remains with the sponsoring plan until retirement. Moreover, both the amount and the timing will depend on how the employee elects to have payments made—over only the employee's life or those of the employee and spouse.

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[1] A GIC does not seem like a product that we would associate with a life insurance company because the policyholder does not have to die in order for someone to be paid. Yet a major group of insurance company financial products is in the pension benefit area. A GIC is one such product.

[2] This amount is determined as follows: $10,000,000 $(1.10)^5$.

B.Fabozzi 4th-3(B)

Liquidity Concerns

Because of uncertainty about the timing and/or the amount of the cash outlays, a financial institution must be prepared to have sufficient cash to satisfy its obligations. Also keep in mind that our discussion of liabilities assumes that the entity that holds the obligation against the financial institution may have the right to change the nature of the obligation, perhaps incurring some penalty. For example, in the case of a certificate of deposit, the depositor may request the withdrawal of funds prior to the maturity date. Typically, the deposit-accepting institution will grant this request but assess an early withdrawal penalty. In the case of certain types of investment companies, shareholders have the right to redeem their shares at any time.

Some life insurance products have a cash-surrender value. This means that, at specified dates, the policyholder can exchange the policy for a lump-sum payment. Typically, the lump-sum payment will penalize the policyholder for turning in the policy. There are some life insurance products that have a loan value, which means that the policyholder has the right to borrow against the cash value of the policy.

In addition to uncertainty about the timing and amount of the cash outlays, and the potential for the depositor or policyholder to withdraw cash early or borrow against a policy, a financial institution has to be concerned with possible reduction in cash inflows. In the case of a depository institution, this means the inability to obtain deposits. For insurance companies, it means reduced premiums because of the cancellation of policies. For certain types of investment companies, it means not being able to find new buyers for shares.

Regulations and Taxation

Numerous regulations and tax considerations influence the investment policies that financial institutions pursue.

Key Points That You Should Understand Before Proceeding

1. What is meant by a financial institution being in the spread business.
2. The two dimensions of the liabilities of a financial institution: amount of the cash outlay and the timing of the cash outlay.
3. Why a financial institution must be prepared to have sufficient cash to satisfy liabilities.

CONCERNS OF REGULATORS

Here, we will provide a brief discussion of the risks that regulators have regarding financial institutions. These risks can be classified into the following sources of risk:

- credit risk
- settlement risk
- market risk
- liquidity risk
- operational risk
- legal risk

Credit risk is a broadly used term to describe several types of risk. In terms of regulatory concerns, credit risk is the risk that the obligor of a financial instrument held by a financial institution will fail to fulfill its obligation on the due date or at any time thereafter.

According to the International Financial Risk Institute, **settlement risk** is the risk that when there is a settlement of a trade or obligation, the transfer fails to take place as expected. Settlement risk consists of counterparty risk (a form of credit risk) and a form of liquidity risk.

Counterparty risk is the risk that a counterparty in a trade fails to satisfy its obligation. The trade could involve the cash settlement of a contract or the physical delivery of some asset. **Liquidity risk** in the context of settlement risk means that the counterparty can eventually meet its obligation, but not at the due date. As a result, the party failing to receive timely payment must be prepared to finance any shortfall in the contractual payment.

Market risk is the risk to a financial institution's economic well-being that results from an adverse movement in the market price of assets (debt obligations, equities, commodities, currencies) it owns or the level or the volatility of market prices. There are measures that can be used to gauge this risk. One such measure endorsed by bank regulators is **value-at-risk**, a measure of the potential loss in a financial institution's financial position associated with an adverse price movement of a given probability over a specified time horizon.

Liquidity risk, in addition to being a part of settlement risk, has two forms according to the International Financial Risk Institute. The first is the risk that a financial institution is unable to transact in a financial instrument at a price near its market value. This risk is called **market liquidity risk**. The other form of liquidity risk is **funding liquidity risk**. This is the risk that the financial institution will be unable to obtain funding to obtain cash flow necessary to satisfy its obligations.

An important risk that is often overlooked but has been the cause of the demise of some major financial institutions is operational risk. Well-known examples in the past two decades include Orange County (1994, United States), Barings Bank (1995, United Kingdom), Daiwa Bank (1995, New York), Allied Irish Banks (2002, Ireland), Enron (2001, United States), MasterCard International (2005, United States), and the terrorist attack in New York on September 11, 2001.[3] **Operational risk** is defined by bank regulators as "the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events."[4] The definition of operation risk includes **legal risk**. This is the risk of loss resulting from failure to comply with laws as well as prudent ethical standards and contractual obligations.

The Global Association of Risk Professionals (GARP) suggests classifying the major categories of operational risk according to the cause of the loss event as follows:

1. employee: loss events resulting from the actions or inactions of a person who works for a firm
2. business process: loss events arising from a firm's execution of business operations

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[3] For a description of each of these examples, see Chapter 1 in Anna Chernobai, Svetlozar T. Rachev, and Frank J. Fabozzi, *Operational Risk: A Guide to Basel II Capital Requirements, Models and Analysis* (Hoboken, NJ: John Wiley & Sons, 2007).

[4] This is the common industry definition that has been adopted by the Bank for International Settlements. See Basel Committee on Banking Supervision, *Operational Risk*, Consultative Document, Bank for International Settlements, January 2001.

3. relationships: loss events caused by the connection or contact that a firm has with clients, regulators, or third parties. This category focuses on the interaction between a firm and other entities; relationship risks involve both parties
4. technology: loss events due to piracy, theft, failure, breakdown, or other disruption in technology, data or information. This category also includes technology that fails to meet the intended business needs
5. external: loss events caused by people or entities outside a firm; the firm cannot control their actions[5]

The five categories above apply to nonfinancial entities as well as financial institutions.

Several reports by regulators have recommended guidelines for controlling the risks of financial institutions described above. One key report is the "Derivatives: Practices and Principles" prepared by the Group of 30 in 1993.[6,7] Derivatives are used to control risks. Their use by end-users such as financial institutions and by dealers (commercial banks and investment banking firms) that are the counterparty for many types of derivatives is of great concern to regulators. As indicated by its title, the focus of the Group of 30 report is on derivatives. The report provides guidelines to help financial institutions and dealers in derivatives to manage derivatives activity in order to benefit from the use of these derivatives.

These guidelines fall into five categories: (1) general policies for senior management; (2) valuation and market risk management; (3) credit risk measurement and management; (4) systems, operations, and control; and (5) recommendations for legislators, regulators, and supervisors.

Key Points That You Should Understand Before Proceeding

1. The concerns of regulators involve credit risk, settlement risk, market risk, liquidity risk, operational risk, and legal risk.
2. Several reports by regulators have recommended guidelines for controlling the risks of financial institutions.

ASSET MANAGEMENT FIRMS

Asset management firms manage the funds of individuals, businesses, endowments and foundations, and state and local governments. These firms are also referred to as money management firms and fund management firms and those who manage the funds are referred to as asset managers, money managers, fund managers, and portfolio managers.

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[5] Gene Alvarez, "Operational Risk Event Classification," published on the GARP website, www.garp.com.

[6] The Group of 30 is a private, nonprofit international organization seeking to "deepen understanding of international economic and financial issues, to explore the international repercussions of decisions taken in the public and private sectors, and to examine the choices available to market practitioners and policymakers."

[7] Two other key reports are the "Risk Management Guidelines for Derivatives" prepared jointly by the Basel Committee on Banking Supervision of the Bank of International Settlements and the International Organisation of Securities Commissions in 1994 and "Framework for the Evaluation of Internal Control Systems" prepared by the BIS in 1998.

Asset management firms are either affiliated with some financial institution (such as a commercial bank, insurance company, or investment bank) or are independent companies.

Larger institutional clients seeking the services of an asset management firm typically do not allocate all of their assets to one asset management firm. Instead, they typically diversify amongst several asset management firms, as well as possibly managing some portion of their funds internally. One reason for using several asset management firms is that firms differ in their expertise with respect to asset classes. For example, a client that seeks an asset manager to invest in common stock, bonds, real estate, and alternative investments (such as commodities and hedge funds) will use asset management firms that specialize in each of those asset classes.

Asset management firms are ranked annually by *Pension & Investments*. The ranking is based on the amount of assets under management (AUM). On October 1, 2007, *Pension & Investments* reported that UBS AG (Switzerland) was the largest asset management firm in the world with AUM as of December 31, 2006, of almost $2.5 trillion, followed by Barclays Global Investors (United Kingdom) with AUM of about about $1.9 trillion. The eight largest U.S. asset management firms along with their global ranking and AUM are

Asset Management Firm	AUM (U.S. dollar millions)	Global Ranking
State Street Global Advisors	$1,748,690	3
Fidelity Investments	$1,635,128	6
Capital Group	$1,403,854	7
Vanguard Group	$1,167,414	9
BlackRock	$1,124,627	10
JPMorgan Chase	$1,013,729	12
Mellon Financial	$ 995,237	13
Legg Mason	$ 957,558	14

Asset management firms receive their compensation primarily from management fees charged based on the market value of the assets managed for clients. For example, if an asset manager manages $100 million for a client and the fee is 60 basis points, then the annual dollar management fee is $600,000 ($100 million times 0.0060). Management fees typically vary with the amount managed, the complexity of managing the asset class, whether the assets are actively managed or passively managed, and whether the account is an institutional account or individual account. Moreover, the management fee is typically higher for managing the assets of regulated investment companies than for other institutional clients.

While performance fees are common for hedge funds that we discuss later, asset management firms are increasingly adopting performance-based management fees for other types of accounts.[8] There are many types of performance-fee structures in the asset management industry. There can be a fee based solely on performance or a combination of a fixed fee based on assets managed plus a performance-based fee. An example of the latter is a fee structure whereby the asset manager receives 80 basis points of the assets managed

[8] Robert D. Arnott, "Performance Fees: The Good, the Bad, and the (Occasionally) Ugly," *Financial Analysts Journal* (July–August 2005), p. 10.

plus a fee of 20% of the return earned on those assets. The criterion for determining a performance-based fee varies. For example, the fee can be based on any positive return, the excess over a minimum return established by the client, or the excess over a benchmark (i.e., some index for the asset class) established by the client.

Types of funds managed by asset management firms include:

- regulated investment companies
- insurance company funds
- separately managed accounts for individuals and institutional investors
- pension funds
- hedge funds

Asset management firms are typically involved in managing the assets of several of the above. Below, we focus on just one type: hedge funds. The other types are discussed in more detail in later chapters.

Hedge Funds

It would be nice to provide a definition of what a hedge fund is by, say, using how it is defined by the federal securities law. However, there is no such definition available, nor is there any universally accepted definition to describe the 9,000 privately pooled investment entities in the United States called "hedge funds" that invest more than $1.3 trillion in assets.

The term *hedge fund* was first used by *Fortune* in 1966 to describe the private investment fund of Alfred Winslow Jones. In managing the portfolio, Jones sought to "hedge" the market risk of the fund by creating a portfolio that was long and short the stock market by an equal amount. Shorting the stock market means selling stock that is not owned with the expectation that the price will decline in the future. The point is that constructing the investment funds portfolio in that way, the portfolio was said to be "hedged" against stock market risk. Moreover, Jones determined that under the U.S. securities law his private investment partnership would not be regulated by the SEC if the investors were "accredited investors." The securities laws define an accredited investor as an investor who does not need protection offered other investors by filings with the SEC.[9] As of this writing, hedge funds are still not regulated by the SEC.

Let's look at some definitions for hedge funds that have been proposed. George Soros is the chairman of Soros Fund Management. His firm advises a privately owned group of hedge funds, the Quantum Group of Funds. He defines a hedge fund as follows:

> Hedge funds engage in a variety of investment activities. They cater to sophisticated investors and are not subject to the regulations that apply to mutual funds geared toward the general public. Fund managers are compensated on the basis of performance rather than as a fixed percentage of assets. "Performance funds" would be a more accurate description.[10]

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[9] There are much more specific criteria set forth in the Securities Act of 1933 for an investor to be classified as an accredited investor. The details are not important for us in our discussion.

[10] George Soros, *Open Society: Reforming Global Capitalism* (New York: Publish Affairs, 2000), p. 32.

The President's Working Group on Financial Markets, a group created by then-President Ronald Reagan and consisting of the Secretary of the Treasury and chairpersons of the Board of Governors of the Federal Reserve Board, the SEC, and the Commodity Futures Trading Commission, provides the following definition:

> The term "hedge fund" is commonly used to describe a variety of different types of investment vehicles that share some common characteristics. Although it is not statutorily defined, the term encompasses any pooled investment vehicle that is privately organized, administered by professional money managers, and not widely available to the public.[11]

A useful definition based on the characteristics of hedge funds is the following provided by the United Kingdom's Financial Services Authority, the regulatory body of all providers of financial services in that country:

> The term can also be defined by considering the characteristics most commonly associated with hedge funds. Usually, hedge funds:
>
> - are organized as private investment partnerships or offshore investment corporations;
> - use a wide variety of trading strategies involving position-taking in a range of markets;
> - employ an assortment of trading techniques and instruments, often including short-selling, derivatives and leverage;
> - pay performance fees to their managers; and
> - have an investor base comprising wealthy individuals and institutions and a relatively high minimum investment limit (set at U.S. $100,000 or higher for most funds).[12]

From the above definition, we can take away the following four points about *hedge funds*. First, the word *hedge* in hedge funds is misleading. While that may have been appropriate in characterizing the fund managed by Alfred Winslow Jones, it is not a characteristic of hedge funds today.

Second, hedge funds use a wide range of trading strategies and techniques in an attempt to earn superior returns. The strategies used by a hedge fund can include one or more of the following:

- leverage, which is the use of borrowed funds
- short selling, which is the sale of a financial instrument not owned in anticipation of a decline in that financial instrument's price
- arbitrage, which is the simultaneous buying and selling of related financial instruments to realize a profit from the temporary misalignment of their prices
- risk control, which involves the use of financial instruments such as derivatives to reduce the risk of loss

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[11] Report of The President's Work Group on Financial Markets, *Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management*, April 1999, p. 1.

[12] Financial Services Authority, *Hedge Funds and the FSA*, Discussion Paper 16, 2002, p. 8.

Risk control is more general than hedging. In a hedge, one often thinks about the elimination of a risk. Risk control means that a risk is mitigated to the degree desired by the investor. Very few hedge funds employ "hedging" in the sense of the elimination of all risks.

Third, hedge funds operate in all of the financial markets described in this book: cash market for stocks, bonds, and currencies and the derivatives markets. Fourth, the management fee structure for hedge funds is a combination of a fixed fee based on the market value of assets managed plus a share of the positive return. The latter is a performance-based compensation referred to as an **incentive fee.**

Finally, in evaluating hedge funds, investors are interested in the absolute return generated by the asset manager, not the relative return. **Absolute return** on a portfolio is simply the return realized. The **relative return** is the difference between the absolute return and the return on some benchmark or index. The use of absolute return rather than relative return for evaluating an asset manager's performance in managing a hedge fund is quite different from the criterion used when evaluating the performance of an asset manager in managing the other types of portfolios discussed in this chapter.

Types of Hedge Funds

There are various ways to categorize the different types of hedge funds. Mark Anson uses the following four broad categories: market directional, corporate restructuring, convergence trading, and opportunistic.[13] A complete description of each category is difficult at this early stage in our understanding of financial markets and instruments, so we will give a general description here.[14]

Market Directional Hedge Funds. A **market directional hedge fund** is one in which the asset manager retains some exposure to "systematic risk." Systematic risk is simply the risk that cannot be eliminated by holding a diversified portfolio of financial instruments. Within the category of market directional hedge funds there are hedge funds that pursue the following strategies: equity long/short strategies, equity market timing, and short selling.

Corporate Restructuring Hedge Funds. A **corporate restructuring hedge fund** is one in which the asset manager positions the portfolio to capitalize on the anticipated impact of a significant corporate event. These events include a merger, acquisition, or bankruptcy. Hedge funds that fall into this category fall into three groups.

The first group includes hedge funds that invest in the securities of a corporation that is either in bankruptcy or is highly likely in the opinion of the asset manager to be forced into bankruptcy. The securities of such corporate entities are called *distressed securities*. The hope is to identify distressed securities that are undervalued relative to what the asset manager believes will result from the outcome of the bankruptcy proceedings.

The second group includes hedge funds that focus on what is called *merger arbitrage*. The underlying rationale for merger arbitrage is that in a merger the stock price of the target company usually trades below the price being offered by the acquiring company. Thus,

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[13] Mark J.P. Anson, *Handbook of Alternative Assets*, 2nd ed. (Hoboken, NJ: John Wiley & Sons, 2006).

[14] For a discussion of the investment risks of hedge funds, see Ellen J. Rachlin, "Assessing Hedge Fund Investment Risk Common Hedge Fund Strategies," in Frank J. Fabozzi (ed.), *Handbook of Finance: Volume II* (Hoboken, NJ: John Wiley & Sons, 2008).

if the stock of the target company is purchased and the merger is in fact completed, there will be a profit equal to the difference between the price paid by the acquiring company and the market price at which the stock is purchased prior to the merger. The risk is that the merger will not be consummated and the stock price of the target company will decline.

The third group of corporate restructuring hedge funds includes hedge funds that seek to capitalize on other types of broader sets of events impacting a corporation. In addition to mergers and bankruptcy, such events include acquisitions, reorganizations, accounting write-offs, share buybacks, and special dividends.

Convergence Trading Hedge Funds. Certain relationships between prices and yields have been observed in sectors of the financial market. For example, the difference in the spread between the yields offered on two types of bond in the bond market might be within a certain range. If an assumed relationship between the prices or yields of securities are out of line and are expected to realign to the historical relationship, then there is an opportunity to capitalize on this expectation. When the relationship is such that the misalignment will generate a profit with absolutely no risk, the strategy employed to take advantage of the misalignment of prices or yields is referred to as an **arbitrage strategy**. In this strategy, the outcome is said to be a *riskless profit* and, hence, some market observers refer to this as a **riskless arbitrage strategy**, although the term *riskless* is redundant. Arbitrage opportunities as just described are rare, and when they do exist, they are usually eliminated quickly. A hedge fund that has as its objective taking advantage of such opportunities will find it difficult to stay in business.

In contrast, there are some perceived misalignments of prices or yields that may be more than temporary. They may in fact reflect a reconsideration by participants in the financial market of economic factors that have altered some historically observed relationship. In such cases, the risk of trying to capitalize on any misalignment of prices or yields is that there will not be the expected realignment of prices or yields. Because the asset managers of a hedge fund may use what is believed to be a "low-risk" strategy to capitalize on perceived misalignments of prices or yields, they unfortunately refer to this strategy as a **risk arbitrage strategy**. Since such strategies involve perceived misalignments of prices and yields to move back to or "converge" to the expected relationship, these hedge funds are referred to as **convergence trading hedge funds**.

The groups of hedge funds that fall into the category of convergence trading hedge funds are fixed-income arbitrage hedge funds, convertible bond arbitrage hedge funds, equity market neutral hedge funds, statistical arbitrage hedge funds, and relative value hedge funds.

Opportunistic Hedge Funds. Opportunistic hedge funds have the broadest mandate of all of the four hedge fund categories. Asset managers of hedge funds can make specific bets on stocks or currencies or they could have well-diversified portfolios. There are two groups of hedge funds that fall into this category: global macro hedge funds and funds of funds.

Global macro hedge funds are hedge funds that invest opportunistically based on macroeconomic considerations in any market in the world. Probably the best-known hedge fund that falls into this group of hedge funds is the Quantum Hedge Fund. Here are two well-documented strategies that the asset managers of this hedge fund employed that produced significant profits. Based on macroeconomic conditions in 1992 in the United Kingdom, the hedge fund bet on the devaluation of the British currency, the pound sterling. The

British government did in fact devalue. In 1997, the hedge fund's macroeconomic analysis indicated that the currency of Thailand, the baht, was overvalued and would be devalued by the government of Thailand. The bet it made on the currency was right. The government of Thailand did devalue the baht.

Concerns with Hedge Funds in Financial Markets

There is considerable debate on the role of hedge funds in financial markets because of their size and their impact on financial markets that results from their investment strategies. On the positive side, it has been argued that they provide liquidity to the market. A study of the Federal Reserve Bank found that market participants described hedge funds "as a significant stability force" in the interest rate options markets.[15] Hedge funds have provided liquidity by participating in the municipal bond market.

The concern, however, is the risk of a severe financial crisis (i.e., systemic risk) due to the activities and investment strategies of hedge funds, most notably the employment of excess leverage. The best-known example is the collapse of Long-Term Capital Management (LTCM) in September 1998. Studies of LTCM indicate that it used leverage of 50. This means that for every $1 million of capital provided by investors, LTCM was able to borrow $49 million. The reason why LTCM was able to borrow such a large amount was because lenders did not understand or ignored the huge risks associated with that hedge fund's investment strategies. The loss of LTCM because of bad bets is not a concern per se since the investors in that hedge fund were sophisticated investors who took their chances in the hopes of reaping substantial returns. Rather, the problem was that the real losers of that hedge fund's activities were major commercial banks and investment banking firms that loaned funds to LTCM. In the view of the Federal Reserve, there were potential dire consequences from the potential failure of LTCM and it reacted by organizing a rescue plan for that hedge fund.

More recently, in June 2007, there was the collapse of the two hedge funds sponsored by the investment banking firm Bear Stearns: the High-Grade Structured Credit Strategies Enhanced Leverage Fund and the High-Grade Structured Credit Strategies Fund. This required the sponsor, Bear Stearns, to bail out the hedge fund.[16]

As a result of the LTCM failure, the President's Working Group on Financial Markets made several recommendations for improving the functioning of hedge funds in financial markets. The major recommendation was that commercial banks and investment banks that lend to hedge funds improve their credit risk management practices.

SUMMARY

Financial institutions provide various types of financial services. Financial intermediaries are a special group of financial institutions that obtain funds by issuing claims to market participants and use these funds to purchase financial assets. Intermediaries transform funds they acquire into assets that are more attractive to the public. By doing so, financial

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15 Federal Reserve Board, *Concentration and Risk in the OTC Markets for U.S. Dollar Interest Rate Options*, p. 3.

16 The funds primarily invested in subprime mortgages.

intermediaries do one or more of the following: (1) provide maturity intermediation, (2) provide risk reduction via diversification at lower cost, (3) reduce the cost of contracting and information processing, or (4) provide a payments mechanism.

The nature of their liabilities, as well as regulatory and tax considerations, determines the investment strategy pursued by all financial institutions. The liabilities of all financial institutions will generally fall into one of the four types shown in Table 1.

There are several sources of risk of concern to regulators in their regulation of financial institutions. These sources of risk include credit risk, settlement risk, market risk, liquidity risk, operational risk, and legal risk. Several reports by regulators have recommended guidelines for controlling the risks of financial institutions.

Asset management firms are involved in the management of funds for individuals, businesses, state and local government entities, and endowments and foundations. They generate income from fees based on the market value of the assets they manage and/or performance fees. One type of product line for an asset management firm is a hedge fund. While there are no universally accepted definitions for private investment entities that are referred to as "hedge funds," these entities have in common the use of leverage, short selling, arbitrage, and risk control in seeking to generate superior returns. Despite the term *hedge* in describing these entities, they do not completely hedge their positions. Asset managers of hedge funds receive performance-based compensation (incentive fee) plus a fee based on the market of the value of the assets. Hedge funds can be categorized as market directional, corporate restructuring, convergence trading, and opportunistic. The public policy concern with hedge funds has been the excessive use of leverage.

KEY TERMS

- Absolute return
- Arbitrage strategy
- Asset/liability management
- Assets under management (AUM)
- Certificate of deposit (CD)
- Commercial bank
- Contracting cost
- Convergence trading hedge funds
- Corporate restructuring hedge fund
- Counterparty risk
- Credit risk
- Debit card
- Depository institutions
- Direct investments
- Diversification
- Financial institution
- Financial intermediary
- Funding liquidity risk
- Guaranteed investment contract (GIC)
- Incentive fee
- Indirect investments
- Investment company
- Legal risk
- Liability
- Liquidity risk
- Market directional hedge fund
- Market liquidity risk
- Market risk
- Maturity intermediation
- Operational risk
- Opportunistic hedge funds
- Payment mechanisms
- Performance-based management fees
- Portfolio
- Relative return
- Risk arbitrage strategy
- Riskless arbitrage strategy
- Settlement risk
- Value-at-risk

QUESTIONS

1. Why is the holding of a claim on a financial intermediary by an investor considered an indirect investment in another entity?
2. The Insightful Management Company sells financial advice to investors. This is the only service provided by the company. Is this company a financial intermediary? Explain your answer.
3. Explain how a financial intermediary reduces the cost of contracting and information processing.
4. "All financial intermediaries provide the same economic functions. Therefore, the same investment strategy should be used in the management of all financial intermediaries." Indicate whether or not you agree or disagree with this statement.
5. A bank issues an obligation to depositors in which it agrees to pay 8% guaranteed for one year. With the funds it obtains, the bank can invest in a wide range of financial assets. What is the risk if the bank uses the funds to invest in common stock?
6. Look at Table 1 again. Match the types of liabilities to these four assets that an individual might have:
   a. car insurance policy
   b. variable-rate certificate of deposit
   c. fixed-rate certificate of deposit
   d. a life insurance policy that allows the holder's beneficiary to receive $100,000 when the holder dies; however, if the death is accidental, the beneficiary will receive $150,000
7. Each year, millions of American investors pour billions of dollars into investment companies, which use those dollars to buy the common stock of other companies. What do the investment companies offer investors who prefer to invest in the investment companies rather than buying the common stock of these other companies directly?
8. In March 1996, the Committee on Payment and Settlement Systems of the Bank for International Settlements published a report entitled "Settlement Settlements published a report entitled "Settlement Risk in Foreign Exchange Transactions" that offers a practical approach that banks can employ when dealing with settlement risk. What is meant by settlement risk?
9. The following appeared in the Federal Reserve Bank of San Francisco's *Economic Letter*, January 25, 2002:

   > Financial institutions are in the business of risk management and reallocation, and they have developed sophisticated risk management systems to carry out these tasks. The basic components of a risk management system are identifying and defining the risks the firm is exposed to, assessing their magnitude, mitigating them using a variety of procedures, and setting aside capital for potential losses. Over the past twenty years or so, financial institutions have been using economic modeling in earnest to assist them in these tasks. For example, the development of empirical models of financial volatility led to increased modeling of market risk, which is the risk arising from the fluctuations of financial asset prices. In the area of credit risk, models have recently been developed for large-scale credit risk management purposes.
   >
   > Yet, not all of the risks faced by financial institutions can be so easily categorized and modeled. For example, the risks of electrical failures or employee fraud do not lend themselves as readily to modeling.

   What type of risk is the above quotation referring to?
10. What is the source of income for an asset management firm?
11. What is meant by a performance-based management fee and what is the basis for determining performance in such an arrangement?
12. **a.** Why is the term *hedge* to describe "hedge funds" misleading?
    b. Where is the term *hedge fund* described in the U.S. securities laws?

13. How does the management structure of an asset manager of a hedge fund differ from that of an asset manager of a mutual fund?
14. Some hedge funds will refer to their strategies as "arbitrage strategies." Why would this be misleading?
15. What is meant by a convergence traded hedge fund?
16. What was the major recommendation regarding hedge funds of the President's Working Group on Financial Markets?



Depository Institutions: Activities and Characteristics

LEARNING OBJECTIVES

After reading this chapter, you will understand

- the role of depository institutions
- how a depository institution generates income
- differences among commercial banks, savings and loan associations, savings banks, and credit unions
- the asset/liability problem all depository institutions face
- who regulates commercial banks and thrifts and the types of regulations imposed
- the funding sources available to commercial banks and thrifts
- the capital requirements imposed on commercial banks and savings and loan associations
- what are the Basel I and Basel II frameworks

Depository institutions include commercial banks (or simply banks), **savings and loan associations** (S&Ls), savings banks, and credit unions. All are financial intermediaries that accept deposits. These deposits represent the liabilities (debt) of the deposit-accepting institution. With the funds raised through deposits and other funding sources, depository institutions both make direct loans to various entities and invest in securities. Their income is derived from two sources: (1) the income generated from the loans they make and the securities they purchase, and (2) fee income.

It is common to refer to S&Ls, savings banks, and credit unions as *thrifts*, which are specialized types of depository institutions. At one time, thrifts were not permitted to accept deposits transferable by check (negotiable), or, as they are more popularly known, checking accounts. Instead, they obtained funds primarily by tapping the savings of households. Since the early 1980s, however, thrifts have been allowed to offer negotiable deposits entirely

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equivalent to checking accounts, although they bear a different name (NOW accounts, share drafts). By law, the investments that thrifts are permitted to make have been much more limited than those permitted to banks. Recent legislation, however, has expanded the range of investments allowed by thrifts so that they can compete more effectively with banks.

Depository institutions are highly regulated because of the important role that they play in the country's financial system. Demand deposit accounts are the principal means that individuals and business entities use for making payments, and government monetary policy is implemented through the banking system. Because of their important role, depository institutions are afforded special privileges such as access to federal deposit insurance and access to a government entity that provides funds for liquidity or emergency needs. For example, deposits are currently insured up to $100,000 per individual account and $250,000 for retirement accounts (which has been increased to $250,000 and $500,000, respectively, through December 31, 2009). We will give examples of how depository institutions have access to emergency funds later in this chapter.

In this chapter, we will look at depository institutions—the nature of their liabilities, where they invest their funds, and how they are regulated. Before we examine the specific institutions, we begin with an overview of the asset/liability problem that a depository institution must manage.

ASSET/LIABILITY PROBLEM OF DEPOSITORY INSTITUTIONS

The asset/liability problem that depository institutions face is quite simple to explain—although not necessarily easy to solve. A depository institution seeks to earn a positive spread between the assets it invests in (loans and securities) and the cost of its funds (deposits and other sources). The spread is referred to as **spread income** or **margin**. The spread income should allow the institution to meet operating expenses and earn a fair profit on its capital.

In generating spread income a depository institution faces several risks. These include **credit risk**, **regulatory risk**, and **interest rate risk**. Credit risk, also called **default risk**, refers to the risk that a borrower will default on a loan obligation to the depository institution or that the issuer of a security that the depository institution holds will default on its obligation. Regulatory risk is the risk that regulators will change the rules so as to adversly impact the earnings of the institution.

Interest Rate Risk

Interest rate risk can be explained best by an illustration. Suppose that a depository institution raises $100 million via deposits that have a maturity of one year and by agreeing to pay an interest rate of 5%. Ignoring for the time being the fact that the depository institution cannot invest the entire $100 million because of reserve requirements, which we discuss later in this chapter, suppose that $100 million is invested in a U.S. government security that matures in 15 years paying an interest rate of 7%. Because the funds are invested in a U.S. government security, there is no credit risk in this case.

It would seem at first that the depository institution has locked in a spread of 2% (5% minus 7%). This spread can be counted on only for the first year, though, because the spread in future years will depend on the interest rate this depository institution will have to pay depositors in order to raise $100 million after the one-year time deposit matures. If interest rates decline, the spread will increase because the depository institution has locked

in the 7% rate. If interest rates rise, however, the spread income will decline. In fact, if this depository institution must pay more than 7% to depositors for the next 14 years, the spread will be negative. That is, it will cost the depository institution more to finance the government securities than it will earn on the funds invested in those securities.

In our example, the depository institution has borrowed short (borrowed for one year) and lent long (invested for 15 years). This policy will benefit from a decline in interest rates but be disadvantaged if interest rates rise. Suppose the institution could have borrowed funds for 15 years at 5% and invested in a U.S. government security maturing in one year earning 7%—borrowed long (15 years) and lent short (one year). A rise in interest rates will benefit the depository institution because it can then reinvest the proceeds from the maturing one-year government security in a new one-year government security offering a higher interest rate. In this case, a decline in interest rates will reduce the spread. If interest rates fall below 7%, there will be a negative spread.

All depository institutions face this interest rate risk. Managers of a depository institution who have particular expectations about the future direction of interest rates will seek to benefit from these expectations. Those who expect interest rates to rise may pursue a policy to borrow funds for a long time horizon (that is, to borrow long) and lend funds for a short time horizon (to lend short). If interest rates are expected to drop, managers may elect to borrow short and lend long.

The problem of pursuing a strategy of positioning a depository institution based on expectations is that considerable adverse financial consequences will result if those expectations are not realized. The evidence on interest rate forecasting suggests that it is a risky business. We doubt if there are managers of depository institutions who have the ability to forecast interest rate moves so consistently that the institution can benefit should the forecast be realized. The goal of management is to lock in a spread as best as possible, not to wager on interest rate movements.

Inherent in any balance sheet of a depository institution is interest rate risk exposure. Managers must be willing to accept some exposure, but they can take various measures to address the interest rate sensitivity of the institution's liabilities and its assets. Regulators impose restrictions on the degree of interest rate risk a depository institution may be exposed to, as explained later in this chapter. A depository institution will have an asset/liability committee that is responsible for monitoring the interest rate risk exposure. There are several asset/liability strategies for controlling interest rate risk. While a discussion of these strategies is beyond the scope of this chapter, we can point out here that development of several financial instruments (such as floating-rate notes, adjustable-rate mortgages, and interest rate swaps) reflects the asset/liability problem that depository institutions seek to solve.

Liquidity Concerns

Besides facing credit risk and interest rate risk, a depository institution must be prepared to satisfy withdrawals of funds by depositors and to provide loans to customers. There are several ways that a depository institution can accommodate withdrawal and loan demand: (1) attract additional deposits, (2) use existing securities as collateral for borrowing from a federal agency or other financial institution such as an investment bank, (3) raise short-term funds in the money market, or (4) sell securities that it owns.

The first alternative is self-explanatory. The second has to do with the privilege we mentioned earlier. Banks are allowed to borrow at the discount window of the Federal

Reserve Banks. The third alternative primarily includes using marketable securities owned as collateral to raise funds in the repurchase agreement market, which we cover in later chapters.

The fourth alternative, selling securities that it owns, requires that the depository institution invest a portion of its funds in securities that are both liquid and have little price risk. By price risk, we refer to the prospect that the selling price of the security will be less than its purchase price, resulting in a loss. For example, while a 30-year U.S. government security is a highly liquid security, its price would change dramatically as interest rates rise. A price decline of, say, 25% would not be uncommon in a volatile interest rate environment. A 30-year government bond is therefore highly liquid, but exposes the depository institution to substantial price risk.

In general, short-term securities entail little price risk. It is therefore short-term, or money market, debt obligations that a depository institution will hold as an investment to satisfy withdrawals and customer loan demand. It does this chiefly by lending federal funds, an investment vehicle that we will discuss later in this chapter. The term to maturity of the securities it holds affects the amount that depository institutions can borrow from some federal agencies because only short-term securities are acceptable collateral.

Securities held for the purpose of satisfying net withdrawals and customer loan demands are sometimes referred to as **secondary reserves.**[1] A disadvantage of holding secondary reserves is that securities with short maturities offer a lower yield than securities with a longer maturity in most interest rate environments. The percentage of a depository institution's assets held as secondary reserves will depend both on the institution's ability to raise funds from the other sources and on its management's risk preference for liquidity (safety) versus yield.

Depository institutions hold liquid assets not only for operational purposes, but also because of the regulatory requirements that we discuss below.

Key Points That You Should Understand Before Proceeding

1. That a depository institution needs to earn a positive spread between the return on its assets and the cost of its funds, which it gets through deposits and other sources.
2. The source and impact of a depository institution's credit risk, interest rate risk, and regulatory risk.
3. The reasons for a depository institution's liquidity concerns and its ways of responding to these concerns.

COMMERCIAL BANKS

While today, we are aware of the role of the federal government in the regulation of commercial banks, prior to 1863, the federal government played almost no role in their regulation. Instead, banks were regulated only at the state level. Realizing the need for a

[1] Roland I. Robinson, *The Management of Bank Funds* (New York: Mcgraw-Hill, 1962), p. 15. The term *secondary reserves* is used because primary reserves are the reserves required by the Federal Reserve Board, which we will discuss later. If you looked at the balance sheet of a depository institution, you would not see the term *secondary reserves* on it. A depository institution invests in short-term or money market instruments for reasons other than liquidity and does not report the purpose for which it acquires securities.

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stronger banking system, the U.S. Congress passed the National Bank Act in 1863 authorizing the federal chartering of national banks. The Office of the Comptroller of the Currency (OCC) was created and empowered with providing national bank charters and regulation of national banks. As a result, there existed state and national banks, a structure popularly referred to as "dual banking." The dual banking structure still exists today, with every state having its own state banking department responsible for regulating banks chartered by their state.

Realizing the need for banks to obtain liquidity during periods of economic stress, the federal government wanted to establish a banking system that would have an entity that banks could borrow from, sort of a "lender of last resort." The U.S. Congress accomplished this with the passage of the Federal Reserve Act of 1913. This legislation established the Federal Reserve System (FRS) as the central banking system. Banks that were members of the FRS were entitled to all the services that the FRS was empowered to provide by the legislation. We will discuss these services later in this section. The legislation required that all national-chartered banks become members of the FRS. State-chartered banks had the option to become members. Most state-chartered banks elected not to become members. Today state-chartered banks can be classified as state member banks and state nonmember banks. With the passage of the Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA), the reserve requirements that we shall discuss for member banks apply also to state-chartered nonmember banks.

Today, banks are regulated and supervised by several federal and state government entities. At the federal level, supervision is undertaken by the Federal Reserve Board, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation.

As of the second quarter of 2007, there were 7,350 commercial banks operating in the United States. Only about 25% of the banks were national banks. Of the state-chartered banks, most were not members of the FRS. Despite the fact that national banks are small in number, they are the major holders of bank assets, more than 65%.

Banks are insured by the Bank Insurance Fund (BIF), which is administered by the Federal Deposit Insurance Corporation (FDIC). Federal depository insurance began in the 1930s, and the insurance program is administered by the FDIC. BIF was created by the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA).

The asset size of banks in the United States as of the first half of 2007 is shown in Table 1. Although less than 7% of the banks have total assets in excess of $1 billion, these banks hold more than 85% of the total assets. The 30 largest banks in the United States as of September 30, 2007, are shown in Table 2.

Assets	No. of Banks	Percentage of Banks
Less than $100 million	3,197	
From $100 million to $1 billion	3,649	49.65
From $1 billion to $10 billion	413	
Greater than $10 billion	91	1.24

Source: *Created from data obtained from the FDIC.*

Table 2 United States Largest Banks (in millions of U.S. dollars)

Rank	Name (City, State)	Consolidated Assets
1.	Citigroup (New York, N.Y.)	$2,220,866
2.	Bank of America Corp. (Charlotte, N.C.)	1,535,684
3.	J.P. Morgan Chase & Company (Columbus, Ohio)	1,458,042
4.	Wachovia Corp. (Charlotte, N.C.)	719,922
5.	Taunus Corp. (New York, N.Y.)	579,062
6.	Wells Fargo & Company (San Francisco, Calif.)	539,865
7.	HSBC North America Inc. (Prospect Heights, Ill.)	483,630
8.	U.S. Bancorp (Minneapolis, Minn.)	222,530
9.	Suntrust Banks, Inc. (Atlanta, Ga.)	180,314
10.	ABN Amro North America (Chicago, Ill.)	160,341
11.	Citizens Financial Group, Inc. (Providence, R.I.)	159,392
12.	Capital One Financial Corp. (McLean, Va.)	145,937
13.	National City Bank (Cleveland, Ohio)	140,648
14.	Regions Financial Corp. (Birmingham, Ala.)	137,624
15.	BB&T Corp. (Winston-Salem, N.C.)	127,577
16.	PNC Financial Services Group, Inc. (Pittsburgh, Pa.)	125,736
17.	State Street Corp. (Boston, Mass.)	112,345
18.	Fifth Third Bancorp (Cincinnati, Ohio)	101,389
19.	Keycorp (Cleveland, Ohio)	93,490
20.	Bancwest Corp. (Honolulu, Hawaii)	70,661
21.	Harris Financial Corp. (Wilmington, Del.)	64,475
22.	Northern Trust Corp. (Chicago, Ill.)	59,509
23.	Comerica Incorporated (Dallas, Tex.)	58,945
24.	Marshall & Ilsley Corp. (Milwaukee, Wis.)	58,327
25.	M&T Bank Corp. (Buffalo, N.Y.)	57,869
26.	Union Bank of Calif. (San Francisco, Calif.)	53,173
27.	Charles Schwab Corp. (San Francisco, Calif.)	49,003
28.	Zions Bancorporation (Salt Lake City, Utah)	48,703
29.	Commerce Bancorp, Inc. (Cherry Hill, N.J.)	48,231
30.	Popular, Inc. (San Juan, Puerto Rico)	46,985

Note: *As of September 30, 2007.*

Source: *Federal Reserve System, National Information Center.*

Bank Services

Commercial banks provide numerous services in our financial system. The services can be broadly classified as follows: (1) **individual banking**, (2) **institutional banking**, and (3) **global banking**. Of course, different banks are more active in certain of these activities than others. For example, money center banks (defined later) are more active in global banking.

Individual banking encompasses consumer lending, residential mortgage lending, consumer installment loans, credit card financing, automobile and boat financing, brokerage services, student loans, and individual-oriented financial investment services such as personal trust and investment services. Interest income and fee income are generated from mortgage lending and credit card financing. **Mortgage lending** is more popularly referred to as **mortgage banking**. Fee income is generated from brokerage services and financial investment services.

Loans to nonfinancial corporations, financial corporations (such as life insurance companies), and government entities (state and local governments in the United States and foreign governments) fall into the category of *institutional banking*. Also included in this category are commercial real estate financing, leasing activities,[2] and factoring.[3] In the case of leasing, a bank may be involved in leasing equipment either as lessors,[4] as lenders to lessors, or as purchasers of leases. Loans and leasing generate interest income, and other services that banks offer institutional customers generate fee income. These services include management of the assets of private and public pension funds, fiduciary and custodial services, and cash management services such as account maintenance, check clearing, and electronic transfers.

It is in the area of *global banking* that banks began to compete head-to-head with investment banking (or securities) firms. Global banking covers a broad range of activities involving corporate financing and capital market and foreign-exchange products and services. Most global banking activities generate fee income rather than interest income. At one time, some of these activities were restricted by federal legislation. More specifically, the Banking Act of 1933 contained four sections barring commercial banks from certain investment banking activities. These four sections are popularly referred to as the **Glass-Steagall Act**. After decades of debate regarding the need for such restrictions, the Glass-Steagall Act was repealed with the enactment of the **Gramm-Leach-Bliley Act** in November 1999, which expanded the permissible activities for banks and bank holding companies.

Corporate financing involves two components. First is the procuring of funds for a bank's customers. This can go beyond traditional bank loans to involve the underwriting of securities. In assisting customers in obtaining funds, banks also provide bankers acceptances, letters of credit, and other types of guarantees for their customers. That is, if a customer has borrowed funds backed by a letter of credit or other guarantee, its lenders can look to the customer's bank to fulfill the obligation. The second area of corporate financing involves advice on such matters as strategies for obtaining funds, corporate restructuring, divestitures, and acquisitions.

Capital market and foreign-exchange products and services involve transactions where the bank may act as a dealer or broker in a service. Some banks, for example, are dealers in U.S. government or other securities. Customers who wish to transact in these securities can do so through the government desk of the bank. Similarly, some banks maintain a foreign-exchange

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[2] Leasing programs offered by some banks include vendor leasing, direct leasing, and leveraged leasing. For a discussion of these programs and the restrictions imposed on banks with respect to leasing activities, see Peter K. Nevitt, Frank J. Fabozzi, and Edmond J. Seifried, *Equipment Leasing for Commercial Bankers* (Philadelphia, PA: Robert Morris Associates, 1987).

[3] The factoring business involves a bank's purchase of accounts receivable.

[4] This means that the bank buys the equipment and leases it to another party. The bank is the lessor, and the party that uses the leased equipment is the lessee.

operation, where foreign currency is bought and sold. Bank customers in need of foreign exchange can use the services of the bank.

In their role as dealers, banks can generate income in three ways: (1) the bid–ask spread; (2) capital gains on the securities or foreign currency they have transacted in; and (3) in the case of securities, the spread between interest income by holding the security and the cost of funding the purchase of that security.

The financial products that banks have developed to manage risk also yield fee income. These products include interest rate swaps, interest rate agreements, currency swaps, forward contracts, and interest rate options. Banks can generate either commission income (that is, brokerage fees) or spread income from selling such products.

Bank Funding

In describing the nature of the banking business, we have focused so far on how banks generate income. Now let's take a look at how a bank raises funds. There are three sources of funds for banks: (1) deposits, (2) nondeposit borrowing, and (3) common stock and retained earnings. Banks are highly leveraged financial institutions, which means that most of their funds come from borrowing—the first two sources we refer to. Included in nondeposit borrowing are borrowing from the Federal Reserve through the discount window facility, borrowing reserves in the federal funds market, and borrowing by the issuance of instruments in the money and bond markets.

Deposits

There are several types of deposit accounts. **Demand deposits** (checking accounts) pay no interest and can be withdrawn upon demand. **Savings deposits** pay interest, typically below market interest rates, do not have a specific maturity, and usually can be withdrawn upon demand.

Time deposits, also called certificates of deposit, have a fixed maturity date and pay either a fixed or floating interest rate. Some certificates of deposit can be sold in the open market prior to their maturity if the depositor needs funds. Other certificates of deposit cannot be sold. If a depositor elects to withdraw the funds from the bank prior to the maturity date, a withdrawal penalty is imposed. A money market demand account is one that pays interest based on short-term interest rates. The market for short-term debt obligations is called the money market, which is how these deposits get their name. They are designed to compete with **money market mutual funds**.

Reserve Requirements and Borrowing in the Federal Funds Market

A bank cannot invest $1 for every $1 it obtains in deposit. All banks must maintain a specified percentage of their deposits in a non–interest-bearing account at one of the 12 Federal Reserve Banks. These specified percentages are called **reserve ratios**, and the dollar amounts based on them that are required to be kept on deposit at a Federal Reserve Bank are called **required reserves**. The reserve ratios are established by the Federal Reserve Board (the Fed). The reserve ratio differs by type of deposit. The Fed defines two types of deposits: transactions and nontransactions deposits. Demand deposits and what the Fed calls "other checkable deposits" (primarily NOW accounts) are classified as transactions

deposits. Savings and time deposits are nontransactions deposits. Reserve ratios are higher for transactions deposits than for nontransactions deposits.

To arrive at its required reserves, a bank does not simply determine its transactions and nontransactions deposits at the close of each business day and then multiply each by the applicable reserve ratio. The determination of a bank's required reserves is more complex. Here, we will give a rough idea of how it is done. First, to compute required reserves, the Federal Reserve has established a two-week period called the **deposit computation period.** Required reserves are the average amount of each type of deposit held at the close of each business day in the computation period, multiplied by the reserve requirement for each type.

Reserve requirements in each period are to be satisfied by *actual reserves,* which are defined as the average amount of reserves held at the close of business at the Federal Reserve Bank during each day of a two-week reserve maintenance period, beginning on Thursday and ending on Wednesday two weeks later. For transactions deposits, the deposit computation period leads the reserve period by two days. For nontransactions deposits, the deposit computation period is the two-week period four weeks prior to the reserve maintenance period.

If actual reserves exceed required reserves, the difference is referred to as **excess reserves.** Because reserves are placed in non–interest-bearing accounts, there is an opportunity cost associated with excess reserves. At the same time, there are penalties imposed on banks that do not satisfy the reserve requirements. Thus, banks have an incentive to manage their reserves so as to satisfy reserve requirements as precisely as possible.

Banks temporarily short of their required reserves can borrow reserves from banks that have excess reserves. The market where banks can borrow or lend reserves is called the **federal funds market.** The interest rate charged to borrow funds in this market is called the *federal funds rate.*

Borrowing at the Fed Discount Window

The Federal Reserve Bank is the banker's bank—or, to put it another way, the bank of last resort. Banks temporarily short of funds can borrow from the Fed at its **discount window.** Collateral is necessary to borrow, but not just any collateral will do. The Fed establishes (and periodically changes) the type of collateral that is eligible. Currently it includes (1) Treasury securities, federal agency securities, and municipal securities, all with a maturity of less than six months; and (2) commercial and industrial loans with 90 days or less to maturity.

The interest rate that the Fed charges to borrow funds at the discount window is called the **discount rate.** The Fed changes this rate periodically in order to implement monetary policy.[5] Bank borrowing at the Fed to meet required reserves is quite limited in amount, despite the fact that the discount rate generally is set below the cost of other sources of short-term funding available to a bank. This is because the Fed views borrowing at the discount window as a privilege to be used to meet short-term liquidity needs, and not a device to increase earnings.

Continual borrowing for long periods and in large amounts is thereby viewed as a sign of a bank's financial weakness or as exploitation of the interest differential for profit. If a bank appears to be going to the Fed to borrow frequently, relative to its previous borrowing pattern, the Fed makes an "informational" call to ask for an explanation for the borrowing. If there is no

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[5] Although altering the discount rate is a tool to implement monetary policy, along with open market operations and the changing of reserve ratios, today it is not viewed as a primary tool.

subsequent improvement in the bank's borrowing pattern, the Fed then makes an "administrative counseling" call in which it tells the bank that it must stop its borrowing practice.

Other Nondeposit Borrowing

Bank borrowing in the federal funds market and at the discount window of the Fed is short term. Other nondeposit borrowing can be short term in the form of issuing obligations in the money market, or intermediate to long term in the form of issuing securities in the bond market. An example of the former is the repurchase agreement (or "repo") market. An example of intermediate- or long-term borrowing is floating-rate notes and bonds.

Banks that raise most of their funds from the domestic and international money markets, relying less on depositors for funds, are called **money center banks**. A **regional bank** by contrast is one that relies primarily on deposits for funding, and makes less use of the money markets to obtain funds. Larger regional banks have been merging with other regional banks to form so-called **superregional banks**.

Capital Requirements for Banks

The capital structure of banks, like that of all corporations, consists of equity and debt (i.e., borrowed funds). Commercial banks, like some other depository institutions and like investment banks are highly leveraged institutions. That is, the ratio of equity capital to total assets is low, typically less than 8% in the case of banks. This level gives rise to regulatory concern about potential insolvency resulting from the low level of capital provided by the owners. An additional concern is that the amount of equity capital is even less adequate because of potential liabilities that do not appear on the bank's balance sheet. These so-called "off-balance sheet" obligations include commitments such as letters of credit and obligations on customized derivatives (such as swaps, caps, and floors).

The organization that plays the primary role in establishing risk and management guidelines for banks throughout the world is the **Basel Committee on Banking Supervision** ("Basel Committee"). This committee is made up of banking supervisory authorities from 13 countries.[6] The Basel Committee is one of four standing committees of the Bank for International Settlements (BIS) in Basel, Switzerland. The other three committees are the Committee on the Global Financial System, the Committee on Payment and Settlement Systems, and the Markets Committee. The four BIS standing committees publish background papers and reports to provide guidance for central banks throughout the world to foster monetary and financial stability.

The capital requirements that resulted from other guidelines published by the Basel Committee are referred to as **risk-based capital requirements**. In July 1988, the Basel Committee released its first guidelines in a document referred to as the **Capital Accord of 1988**.[7] Because the Basel Committee has since published other guidelines, the Capital Accord of 1988 is now commonly referred to as the **Basel I Framework**. The primary objective of the Basel I Framework was to establish minimum capital standards designed to protect against credit risk. In 1996, the Basel I Framework was amended to broaden its scope to include

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[6] The countries are Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

[7] Bank for International Settlements, *International Convergence of Capital Measurement and Capital Standard*, July 1988.

risk-based capital requirements based on market risk.[8] In 1998, the Basel Committee discussed the importance of operational risk as a substantial financial risk factor and beginning in 2001 published several guidelines and reports dealing with operational risk.[9]

During the two years that followed the publication of the amendment to Basel I for market risk, the Basel Committee decided to undertake a more comprehensive amendment to the Basel I Framework that would incorporate a diversity of risks faced by banks in formulating risk-based capital requirements. This led to a new capital accord released in June 2004 that is popularly referred to as the **Basel II Framework.**[10] The purpose of the Basel II Framework was to improve on the rules as set forth in the Basel I Framework by bringing risk-based capital requirements more in line with the underlying risks to which banks are exposed. Moreover, the Basel II Framework encourages banks to identify those risks not just today but in the future and to improve their existing risk management systems to manage those risks. That is, the Basel II Framework sought to promote a more forward-looking approach to capital supervision. The Basel II Framework, which went through a number of amendments since its release and was finalized in June 2006, is based on what the Basel Committee refers to as three "pillars": minimum risk-based capital requirements (Pillar I), supervisory review of capital adequacy and internal assessment process (Pillar II), and market discipline through public disclosure of various financial and risk indicators (Pillar III).

Moving from the guidelines to implementation by national banking authorities and banks is not simple. The Basel Committee has several subcommittees whose stated purpose is to promote consistency in its implementation of the guidelines. The four major ones are the Accord Implementation Group, the Capital Task Force, the Risk Management Group, and the Transparency Group. The purpose of the Accord Implementation Group is to promote the exchange of information on the practical implementation challenges of the two Basel frameworks. The Capital Task Force is responsible for considering substantive modifications to and interpretations of the two Basel frameworks. The objective of the Risk Management Group is to formulate new standards for risk management and methodologies for regulatory capital allocation models. The purpose of the Transparency Groups is to develop and review the disclosure principles described in Pillar III of the Basel Framework.

We will not review the risk-based capital requirements in detail. Instead, we will discuss simply the treatment of risk-based capital requirements for credit risk.

Credit Risk and Risk-Based Capital Requirements

Consider, for example, two banks, A and B, with $1 billion in assets. Suppose that both invest $400 million in identical assets, but the remaining $600 million in different assets. Bank A invests $500 million in U.S. government bonds and $100 million in business loans. Bank B invests $100 million in U.S. government bonds and $500 million in business loans. Obviously, the exposure to default losses is greater for Bank B. While the

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[8] Bank for International Settlements, *Amendment to the Capital Accord to Incorporate Market Risks,* April 1996.

[9] See the following publications of the Bank for International Settlements: *Working Paper on the Regulatory Treatment of Operational Risk* (September 28, 2001), *Sound Practices for the Management and Supervision of Operational Risk* (December 20, 2001), *Sound Practices for the Management and Supervision of Operational Risk* (July 6, 2002), and *Sound Practices for the Management and Supervision of Operational Risk* (February 25, 2003).

[10] Bank for International Settlements, *Basel II: International Convergence of Capital of Measurement and Capital Standards: A Revised Framework,* June 2004.

Table 3 Credit Risk Weight Capital Requirement for Various Assets

Risk Weight	Example of Assets Included
0%	U.S. Treasury securities Mortgage-backed securities issued by the Government National Mortgage Association
20%	Municipal general obligation bonds Mortgage-backed securities issued by the Federal Home Loan Mortgage Corporation or the Federal National Mortgage Association
50%	Municipal revenue bonds Residential mortgages
100%	Commercial loans and commercial mortgages LDC loans Corporate bonds

capital adequacy standards take this greater credit risk into account, they do not recognize liquidity factors or the market price sensitivity to which a bank may be exposed.

The risk-based capital guidelines attempt to recognize credit risk by segmenting and weighting requirements. First, capital is defined as consisting of Tier 1 and Tier 2 capital. Minimum requirements are established for each tier. Tier 1 capital is considered core capital; it consists basically of common stockholders' equity, certain types of preferred stock, and minority interest in consolidated subsidiaries. Tier 2 capital is called supplementary capital; it includes loan-loss reserves, certain types of preferred stock, perpetual debt (debt with no maturity date), hybrid capital instruments and equity contract notes, and subordinated debt.

Second, the guidelines establish a credit risk weight for all assets. The weight depends on the credit risk associated with each asset. There are four credit risk classifications for banks: 0%, 20%, 50%, and 100%, arrived at on no particular scientific basis. Table 3 lists examples of assets that fall into each credit risk classification.[11]

The way the credit risk weights work is as follows. The book value of the asset is multiplied by the credit risk weight to determine the amount of core and supplementary capital that the bank will need to support that asset. For example, suppose that the book values of the assets of a bank are as follows:

Asset	Book Value (in millions)
U.S. Treasury securities	$ 100
Municipal general obligation bonds	100
Residential mortgages	500
Commercial loans	300
Total book value	$1,000

[11] There are special rules for determining the amount of capital required for off-balance sheet items. An off-balance sheet item is a position in interest-sensitive contracts and/or foreign-exchange-related products that not reported on the balance sheet.

The risk-weighted assets are calculated as follows:

Asset	Book Value (in millions)	Risk Weight	Product (in millions)
U.S. Treasury securities	$100	0%	$ 0
Municipal general obligation bonds	100	20	20
Residential mortgages	500	50	250
Commercial loans	300	100	300
Risk-weighted assets	–	–	$570

The risk-weighted assets for this bank would be $570 million.

The minimum core (Tier 1) capital requirement is 4% of the book value of assets; the minimum *total* capital (core plus supplementary capital) is 8% of the risk-weighted assets. To see how this works, consider the hypothetical bank we just used to illustrate the calculation of risk-weighted assets. For that bank, the risk-weighted assets are $570 million. The minimum core capital requirement is $40 million (0.04 × $1 billion); the minimum total capital requirement is $45.6 million (0.08 × $570 million).[12]

One implication of the new capital guidelines is that it will encourage banks to sell off their loans in the open market. By doing so, the bank need not maintain capital for the loans (assets) sold off. Although the secondary market for individual bank loans has been growing, it has not reached the stage where a bank can efficiently sell large amounts of loans. An alternative is for a bank to pool loans and issue securities that are collateralized by the pool of loans. This is the process of asset securitization.

Key Points That You Should Understand Before Proceeding

1. Bank deposits are insured by government-sponsored insurance programs, and state-chartered banks may elect to join the Federal Reserve System.
2. Banks raise funds from deposits, from issuing debt and equity securities, and from their own earnings.
3. U.S. banks must keep a fraction of their deposits in assets that qualify as reserves.
4. Banks may borrow funds from the Federal Reserve System.
5. There are risk-based capital requirements and these requirements are set by the Basel Committee on Banking Supervision of the Bank for International Settlements.
6. The focus of the risk-based requirements as set forth in the Basel I framework was on credit risk; the Basel II framework extended risk-based capital requirements based on other risks.

SAVINGS AND LOAN ASSOCIATIONS

S&Ls represent a fairly old institution. The basic motivation behind the creation of S&Ls was the providing of funds for financing the purchase of a home. The collateral for the loans would be the home being financed.

[12] Other minimum standards imposed by the guidelines cover limitations on supplementary capital elements.

S&Ls are either mutually owned or have corporate stock ownership. "Mutually owned" means there is no stock outstanding, so technically the depositors are the owners. To increase the ability of S&Ls to expand the sources of funding available to bolster their capital, legislation facilitated the conversion of mutually owned companies into a corporate stock ownership structure.

Like banks, S&Ls may be chartered under either state or federal statutes. At the federal level, the primary regulator of S&Ls is the Director of the Office of Thrift Supervision (OTS), created in 1989 by FIRREA. Prior to the creation of OTS, the primary regulator was the Federal Home Loan Bank Board (FHLBB). The FHLBB no longer exists. The Federal Home Loan Banks, which, along with the FHLBB, comprised the Federal Home Loan Bank System, still exist and make advances (i.e., loans) to member institutions (S&Ls and commercial banks).

Like banks, S&Ls are now subject to reserve requirements on deposits established by the Fed. Prior to the passage of FIRREA, federal deposit insurance for S&Ls was provided by the Federal Savings and Loan Insurance Corporation (FSLIC). The Savings Association Insurance Fund (SAIF) has replaced FSLIC. SAIF is administered by the FDIC.

Assets

Traditionally, the only assets in which S&Ls were allowed to invest have been mortgages, mortgage-backed securities, and U.S. government securities. Mortgage loans include fixed-rate mortgages, adjustable-rate mortgages, and other types of mortgage designs. While most mortgage loans are for the purchase of homes, S&Ls do make construction loans.

As the structures of S&L balance sheets and the consequent maturity mismatch led to widespread disaster and insolvency, the Garn-St. Germain Act of 1982 expanded the types of assets in which S&Ls could invest. The acceptable list of investments now includes consumer loans (loans for home improvement, automobiles, education, mobile homes, and credit cards), nonconsumer loans (commercial, corporate, business, or agricultural loans), and municipal securities.

Although S&Ls had a comparative advantage in originating mortgage loans, they lacked the expertise to make commercial and corporate loans. Rather than make an investment in acquiring those skills, S&Ls took an alternative approach and invested in corporate bonds because these bonds were classified as corporate loans. More specifically, S&Ls became one of the major buyers of non–investment-grade corporate bonds, more popularly referred to as **junk bonds** or high-yield bonds. Under FIRREA, S&Ls are no longer permitted to invest new money in junk bonds.

S&Ls invest in short-term assets for operational (liquidity) and regulatory purposes. All S&Ls with federal deposit insurance must satisfy minimum liquidity requirements. Acceptable assets include cash, short-term government agency and corporate securities, certificates of deposit of commercial banks,[13] other money market instruments, and federal funds. In the case of federal funds, the S&L is lending excess reserves to another depository institution that is short of funds.

Funding

Prior to 1981, the bulk of the liabilities of S&Ls consisted of passbook savings accounts and time deposits. The interest rate that could be offered on these deposits was regulated. S&Ls were given favored treatment over banks with respect to the maximum interest rate

[13] The S&L is an investor when it holds the CD of a bank, but the CD represents the liability of the issuing bank.

they could pay depositors. They were permitted to pay an interest rate 0.5% higher, later reduced to 0.25%. With the deregulation of interest rates discussed earlier in this chapter, banks and S&Ls now compete head-to-head for deposits. Deregulation also expanded the types of accounts that may be offered by S&Ls—negotiable order of withdrawal (NOW) accounts and money market deposit accounts (MMDA). NOW accounts are similar to demand deposits. Unlike demand deposits, NOW accounts pay interest.

In the 1980s, S&Ls became more active in raising funds in the money market. For example, they were able to use the repurchase agreement market to raise funds. Some larger S&Ls have issued commercial paper as well as medium-term notes. They can borrow in the federal funds market and they have access to the Fed's discount window. S&Ls can also borrow from the Federal Home Loan Banks. These borrowings, called advances, can be short term or long term in maturity, and the interest rate can be fixed or floating.

Regulation

Federal S&Ls are chartered under the provisions of the **Home Owners Loan Act of 1933.** Federally chartered S&Ls are now supervised by the Office of Thrift Supervisor. State-chartered banks are supervised by the respective states. A further act in 1933 established the Federal Savings and Loan Insurance Corporation, which at that time insured the deposits of federally chartered S&Ls up to $5,000 and allowed state-chartered S&Ls that could qualify to obtain the same insurance coverage. We discuss some of the important legislation and the players below.

As in bank regulation, S&Ls historically have been regulated with respect to the maximum interest rates on deposit accounts, geographical operations, permissible activities (types of accounts and types of investments), and capital adequacy requirements. In addition, there have been restrictions on the sources of nondeposit funds and liquidity requirements. We mentioned liquidity requirements earlier.[14]

The maximum interest rate that is permitted on deposit accounts has been phased out by the Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA). While this allowed S&Ls to compete with other financial institutions to raise funds, it also raised their funding costs. For reasons to be described later, while banks also faced higher funding costs, their balance sheets were better constituted than those of S&Ls to cope with the higher costs resulting from interest rate deregulation.

Besides phasing in the deregulation of interest rates on deposit accounts, DIDMCA was significant in several other ways. First, it expanded the Fed's control over the money supply by imposing deposit reserve requirements on S&Ls. In return, S&Ls were permitted to offer NOW accounts.

Subsequent legislation, the Garn-St. Germain Act, not only granted thrifts the right to offer money market demand accounts so that S&Ls could compete with money market funds, but also broadened the types of assets in which S&Ls could invest. While S&Ls were first given permission by the FHLBB in 1979 to originate and invest in adjustable-rate mortgage loans, restrictions on the interest rate and other terms stymied their use. Two years later, the FHLBB removed some major impediments.

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[14] Liquidity requirements are not imposed on banks because the majority of their assets are of less than five years' maturity.

Permission to raise funds in the money market and the bond market was granted by the Federal Home Loan Bank Board in 1975 (when it allowed the issuance of mortgage pass-through securities by S&Ls) and in 1979 (when it allowed the issuance of commercial paper and Eurodollar issues). FHLBB permission to form finance subsidiaries was granted in 1984. Through these subsidiaries, S&Ls were able to broaden their funding sources by the issuance of mortgage-related securities known as collateralized mortgage obligations.

Geographical operations of S&Ls were restricted until 1981, when the FHLBB permitted thrifts to acquire thrifts in other states.

There are two sets of **capital adequacy standards** for S&Ls, as for banks. For S&Ls, there are also two ratio tests based on "core" capital and "tangible" capital. The risk-based capital guidelines are similar to those for banks. Instead of two tiers of capital, however, there are three: Tier 1—tangible capital, Tier 2—core capital, and Tier 3—supplementary capital.

As with commercial banks, in addition to risk-based capital requirements based on credit risk there are risk-based requirements based on interest rate risk. For S&Ls, regulators have taken a different approach to measuring interest rate risk than regulators of commercial banks. In December 1988, the Federal Home Loan Bank Board, the predecessor to the Office of Thrift Supervision (OTS), stated that it intended to take into consideration interest rate risk exposure in establishing capital requirements. In December 1990, the OTS proposed a rule for dealing with interest rate risk exposure in setting capital requirements. In August 1993, the OTS finally adopted a rule that incorporates interest rate risk into risk-based capital requirements. The rule specifies that if a thrift has greater than "normal" interest rate risk exposure (where normal is defined by the rule), then there would be a deduction of the thrift's total capital for purposes of calculating its risk-based capital requirements. Interest rate risk exposure was specified in the rule as a decline in the net portfolio value (the value of the portfolio after deducting liabilities) resulting from a 200 basis point change (up and down) in market interest rates. What is deducted from the thrift's total capital is one-half the difference between the thrift's measured exposure and the "normal" level of exposure, which is defined as 2% of the estimated economic value of the assets.[15]

The Savings and Loans Association Crisis

The story of the growth of the S&L industry since the late 1960s and the ensuing S&L crisis can't be described in one short chapter, but a basic understanding of the downfall of this industry is possible.

Until the early 1980s, S&Ls and all other lenders financed housing through traditional mortgages at interest rates fixed for the life of the loan. The period of the loan was typically long, frequently up to 30 years. Funding for these loans, by regulation, came from deposits having a maturity considerably shorter than the loans. As we explained earlier in this chapter, this is the funding problem of lending long and borrowing short. It is extremely risky—although regulators took a long time to understand it. There is no problem, of course, if interest rates are stable or declining, but if interest rates rise above the interest rate on the mortgage loan, a negative spread will result, which must result eventually in insolvency. Regulators at first endeavored to shield the S&L industry from the need to pay high interest rates without losing deposits

[15] Federal Deposit Insurance Corporation, "Differences in Capital and Accounting Standards Among the Federal Banking and Thrift Agencies; Report to Congressional Committees." 2003.

by imposing a ceiling on the interest rate that would be paid by S&Ls and by their immediate competitors, the other depository institutions. But the approach did not and could not work.

With the high volatility of interest rates in the 1970s, followed by the historically high level of interest rates in the early 1980s, all depository institutions began to lose funds to competitors exempt from ceilings, such as the newly formed money market funds; this development forced some increase in ceilings. The ceilings in place since the middle of the 1960s did not protect the S&Ls; the institutions began to suffer from diminished profits, and increasingly from operating losses. A large fraction of S&Ls became technically insolvent as rising interest rates eroded asset market values to the point where they fell short of the liabilities.

But regulators, anxious to cover up the debacle of their empire, let them continue to operate, worsening the problem by allowing them to value their mortgage assets at book value. Profitability worsened with deregulation of the maximum interest rate that S&Ls could pay on deposits. While deregulation allowed S&Ls to compete with other financial institutions for funds, it also raised funding costs. Banks were better equipped to cope with rising funding costs because bank portfolios were not dominated by old, fixed-rate mortgages as S&Ls were. A larger portion of bank portfolios consisted of shorter-term assets and other assets whose interest rate reset to market interest rates after short time periods.

The difficulty of borrowing short and lending long was only part of the problem faced by the industry. As the crisis progressed, and the situation of many S&Ls became hopeless, fraudulent management activities were revealed. Many S&Ls facing financial difficulties also pursued strategies that exposed the institution to greater risk, in the hope of recovering if these strategies worked out. What encouraged managers to pursue such high-risk strategies was that depositors had no reason to be concerned with the risks associated with the institution where they kept their funds because the U.S. government, through federal deposit insurance, guaranteed the deposits up to a predetermined amount. Troubled S&Ls could pay existing depositors through attracting new depositors by offering higher interest rates on deposits than financially stronger S&Ls. In turn, to earn a spread on the higher cost of funds, they had to pursue riskier investment policies.

Key Points That You Should Understand Before Proceeding

1. S&Ls may be chartered by state or federal authorities.
2. The majority of assets owned by S&Ls are mortgages and mortgage-backed securities.
3. S&Ls may obtain funding from deposits and issuance of debt and equity securities.
4. The government regulates many aspects of an S&L's activities, including its capital structure.
5. The fundamental causes of the S&L crisis.

SAVINGS BANKS

Savings banks are institutions similar to, although much older than, S&Ls. They can be either mutually owned (in which case they are called mutual savings banks) or stockholder owned. While conversion of mutual to corporate structure was made easier by the Garn-St. Germain Act, most savings banks are of the mutual form. Only 16 states in the eastern portion of the U.S. charter savings banks. In 1978, Congress permitted the chartering of federal savings banks.

Although the total deposits at savings banks are less than those at S&Ls, savings banks are typically larger institutions. Asset structures of savings banks and S&Ls are similar. The principal assets of savings banks are residential mortgages. Because states have permitted more portfolio diversification than was permitted by federal regulators of S&Ls, savings bank portfolios weathered funding risk far better than S&Ls. Included in savings bank portfolios are corporate bonds, Treasury and government agency securities, municipal securities, common stock, and consumer loans.

The principal source of funds for savings banks is deposits. Typically, the ratio of deposits to total assets is greater for savings banks than for S&Ls. Savings banks offer the same types of deposit accounts as S&Ls. Deposits can be insured by either the Bank Insurance Fund or Savings Association Insurance Fund.

CREDIT UNIONS

Credit unions are the smallest and the newest of the depository institutions. Credit unions can obtain either a state or federal charter.[16] Their unique aspect is the "common bond" requirement for credit union membership. According to the statutes that regulate federal credit unions, membership in a federal credit union "shall be limited to groups having a common bond of occupation or association, or to groups within a well-defined neighborhood, community, or rural district." They are either cooperatives or mutually owned. There is no corporate stock ownership. The dual purpose of credit unions is, therefore, to serve their members' saving and borrowing needs.

Technically, because credit unions are owned by their members, member deposits are called shares. The distribution paid to members is, therefore, in the form of dividends, not interest. Since 1970, the shares of all federally chartered credit unions have been insured by the **National Credit Union Share Insurance Fund** (NCUSIF) for up to $100,000 and $250,000 for retirement accounts, the same as for commercial banks. State-chartered credit unions may elect to have NCUSIF coverage; for those that do not, insurance coverage is provided by a state agency.

Federal regulations apply to federally chartered credit unions and state-chartered credit unions that have elected to become members of NCUSIF. Most states, however, specify that state-chartered institutions must be subject to the same requirements as federally chartered ones. Effectively, therefore, most credit unions are regulated at the federal level. The principal federal regulatory agency is the **National Credit Union Administration** (NCUA).

Credit unions obtain their funds primarily from the deposits of their members. With deregulation, they can offer a variety of accounts, including share drafts, which are similar to checking accounts but pay interest. Playing a role similar to the Fed, as the lender of last resort, is the **Central Liquidity Facility (CLF)**, which is administered by NCUA. CLF provides short-term loans to member credit unions with liquidity needs.

Credit union assets consist of small consumer loans, residential mortgage loans, and securities. Regulations 703 and 704 of NCUA set forth the types of investments in which a credit union may invest. They can make investments in **corporate credit unions**.

What is a corporate credit union? One might think that a corporate credit union is a credit union set up by employees of a corporation. It is not. Federal and state-chartered

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[16] The Federal Credit Union Act of 1934 authorized the formation of federally chartered credit unions in all states.

credit unions are referred to as "natural person" credit unions because they provide financial services to qualifying members of the general public. In contrast, corporate credit unions provide a variety of investment services, as well as payment systems, only to natural person credit unions. As of 2000, there were 36 corporate credit unions ranging in size from $5 million to $30 billion. All but three corporate credit unions are federally insured. The U.S. Central Credit Union acts as the chief liquidity center for corporate credit unions by investing surplus funds from the other corporate credit unions.

SUMMARY

Depository institutions (commercial banks, savings and loan associations, savings banks, and credit unions) accept various types of deposits. With the funds raised through deposits and other funding sources, they make loans to various entities and invest in securities. The deposits usually are insured by a federal agency. Income is derived from investments (loans and securities) and fee income. Thrifts (savings and loan associations, savings banks, and credit unions) are specialized types of depository institutions. Historically, they have not been authorized to accept demand accounts, but more recently thrifts have been offering some types of deposits equivalent to checking accounts.

A depository institution seeks to earn a positive spread between the assets it invests in and the cost of its funds. In generating spread income, a depository institution faces credit risk and interest rate risk. A depository institution must be prepared to satisfy net withdrawals of funds by depositors and provide loans to customers. A depository institution can accommodate withdrawals or loan demand by attracting additional deposits, using existing securities as collateral for borrowing from a federal agency, raising short-term funds in the money market, or selling securities that it owns.

All national banks must be members of the Federal Reserve System. State-chartered banks may elect to join the Federal Reserve System. The services provided by commercial banks can be broadly classified as individual banking, institutional banking, and global banking.

There are three sources of funds for banks: (1) deposits, (2) nondeposit borrowing, and (3) retained earnings and sale of equity securities. Banks are highly leveraged financial institutions, meaning that most of their funds are obtained from deposits and nondeposit borrowing, which includes borrowing from the Fed through the discount window facility, borrowing reserves in the federal funds market, and borrowing by the issuance of instruments in the money and bond markets.

Banks must maintain reserves at one of the 12 Federal Reserve Banks, according to reserve requirements established by the Fed. Banks temporarily short of their required reserves can borrow reserves in the federal funds market or borrow temporarily from the Fed at its discount window.

The Basel Committee on Banking Supervision is the entity that establishes risk and management guidelines for banks throughout the world. The capital requirements that resulted from other guidelines published by the Basel Committee are referred to as risk-based capital requirements. These guidelines are set forth in the Basel I Framework and Basel II Framework. The purpose of the latter framework was to improve rules that were set forth in the Basel I Framework by bringing risk-based capital requirements more in line with the underlying risks to which banks are exposed and to promote a more forward-looking approach to capital supervision.

Like banks, S&Ls may be chartered under either state or federal statutes. At the federal level, the primary regulator of S&Ls is the Director of the Office of Thrift Supervision. The deposits of S&Ls are subject to reserve requirements established by the Fed. Federal deposit insurance for S&Ls is provided by the Savings Association Insurance Fund.

Much as in the case of bank regulation, S&Ls are regulated with respect to geographical operations, permissible activities, and capital adequacy requirements. S&Ls invest principally in mortgages and mortgage-related securities. Deregulation expanded the types of investments that S&Ls are permitted to make, as well as expanding the types of deposit accounts that may be offered and the available funding sources.

The asset structures of savings banks and S&Ls are similar. As some states have permitted greater portfolio diversification than is permitted by federal regulators of S&Ls, this is reflected in savings bank portfolios. The principal source of funds for savings banks is deposits. Deposits can be federally insured by either the BIF or SAIF.

Credit unions are depository institutions that have a "common bond" requirement for membership. They are owned by their members. Although they can be state or federally chartered, most credit unions effectively are regulated at the federal level by the National Credit Union Administration. The assets of credit unions consist primarily of small consumer loans to their members and credit card loans.

KEY TERMS

- Advances
- Basel I Framework
- Basel II Framework
- Basel Committee on Banking Supervision8
- Capital Accord of 1988
- Capital adequacy standards
- Central Liquidity Facility (CLF)
- Core capital
- Corporate credit union
- Credit risk (default risk)
- Credit union
- Demand deposit
- Deposit computation period
- Discount rate
- Discount window
- Excess reserves
- Federal funds market
- Glass-Steagall Act
- Global banking
- Gramm-Leach-Bliley Act
- Home Owners Loan Act of 1933
- Institutional banking
- Interest rate risk
- Junk bonds
- Money center bank
- Money market mutual fund
- Mortgage banking
- Mortgage lending
- National Credit Union Administration (NCUA)
- National Credit Union Share Insurance Fund (NCUSIF)
- "Natural person" credit union
- NOW (Negotiable Order of Withdrawal) account
- Regional bank
- Regulatory risk
- Required reserves
- Reserve ratio
- Risk-based capital requirements
- Savings and loan association (S&L)
- Savings bank
- Savings deposit
- Secondary reserves
- Spread income (margin)
- Superregional bank
- Supplementary capital
- Time deposit (certificates of deposit)

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QUESTIONS

1. Explain the ways in which a depository institution can accommodate withdrawal and loan demand.
2. Why do you think a debt instrument whose interest rate is changed periodically based on some market interest rate would be more suitable for a depository institution than a long-term debt instrument with a fixed interest rate?
3. What is meant by:
   a. individual banking
   b. institutional banking
   c. global banking
4. a. What is the Basel Committee for Bank Supervision?
   b. What do the two frameworks, Basel I and Basel II, published by the Basel Committee for Bank Supervision, address regarding banking?
5. Explain each of the following:
   a. reserve ratio
   b. required reserves
6. Explain each of the following types of deposit accounts:
   a. demand deposit
   b. certificate of deposit
   c. money market demand account
7. How did the Glass-Steagall Act impact the operations of a bank?
8. The following is the book value of the assets of a bank:

Asset	Book Value (in millions)
U.S. Treasury securities	$ 50
Municipal general obligation bonds	50
Residential mortgages	400
Commercial loans	200
Total book value	$700

   a. Calculate the credit risk-weighted assets using the following information:

Asset	Risk Weight
U.S. Treasury securities	0%
Municipal general obligation bonds	20
Residential mortgages	50
Commercial loans	100

   b. What is the minimum core capital requirement?
   c. What is the minimum total capital requirement?
9. In later chapters, we will discuss a measure called duration. Duration is a measure of the sensitivity of an asset or a liability to a change in interest rates. Why would bank management want to know the duration of its assests and liabilities?
10. a. Explain how bank regulators have incorporated interest risk into capital requirements.
    b. Explain how S&L regulators have incorporated interest rate risk into capital requirements.
11. When the manager of a bank's portfolio of securities considers alternative investments, she is also concerned about the risk weight assigned to the security. Why?
12. You and a friend are discussing the savings and loan crisis. She states that "the whole mess started in the early 1980s. When short-term rates skyrocketed, S&Ls got killed—their spread income went from positive to negative. They were borrowing short and lending long."
    a. What does she mean by "borrowing short and lending long"?
    b. Are higher or lower interest rates beneficial to an institution that borrows short and lends long?
13. Consider this headline from the *New York Times* of March 26, 1933: "Bankers will fight Deposit Guarantees." In this article, it is stated that bankers argue that deposit guarantees will encourage bad banking. Explain why.
14. How did the Gramm-Leach-Bliley Act of 1999 expand the activities permitted by banks?
15. The following quotation is from the October 29, 1990 issue of *Corporate Financing Week*:

    Chase Manhattan Bank is preparing its first asset-backed debt issue, becoming the last major consumer bank to plan to access the growing market, Street asset-backed officials said. . . . Asset-backed offerings enable banks to remove credit card or other loan receivables from their balance sheets, which helps them comply with capital requirements.

    a. What capital requirements is this article referring to?

b. Explain why asset securitization reduces capital requirements.

16. Comment on this statement: The risk-based guidelines for commercial banks attempt to gauge the interest rate risk associated with a bank's balance sheet.

17. a. What is the primary asset in which savings and loan associations invest?
b. Why were banks in a better position than savings and loan associations to weather rising interest rates

18. What federal agency regulates the activities of credit unions?