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***Financial Markets and Institutions*, Thirteenth Edition Jeff Madura**

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This text is dedicated to Best Friends Animal Society in Kanab, Utah, for its commitment to, compassion for, and care ofmore than 1,500 animals,man ofwhich were previousl homeless. Best Friends has established an ambitious campaign to save all health dogs and cats in the United States by 2025 (prevent health cats and dogs

from being euthanized due to excessive population).

Most of the royalties the author receives fromthis edition of the textwill be invested in a fund thatwill ultimatel be donated to Best Friends Animal Society and other humane societies. In the last several years, this fund has donatedmore than $500,000 to Best Friends to support a new healthcare facility for Best Friends, sponsor a Public Broadcasting Service (PBS) documentary on the eorts of Best Friends to help animal societies, save dogs thatwere abandoned during Hurricane Harvey in Houston during 2017, and create an online information network in 2019 for peoplewhowant to help dogs. This fund has also donated more than $100,000 to other animal care societies, including

Friends of Greyhounds (Fort Lauderdale, FL), Florida Humane Society (Pompano Beach, FL), Greyhound Pets of America in Central Florida (Melbourne, FL), Tri-County Humane Society (Boca Raton, FL), and Doris Da Animal League (Washington, DC).

Financial markets finance much of the expenditures by corporations, governments, and individuals. Financial institutions are the key intermediaries in financial markets because they transfer funds from savers to the individuals, firms, or government agencies that need funds. **Financial Markets and Institutions,** 13th Edition, describes financial markets and the financial institutions that serve those markets. It provides a conceptual framework that can be used to understand why markets exist. Each type of financial market is described with a focus on the securities that are traded and the participation by financial institutions.

Today, many financial institutions offer all types of financial services, such as banking, securities services, mutual fund services, and insurance services. Each type of financial service is unique, however. Therefore, the discussion of financial services in this book is organized by type of financial service that can be offered by financial institutions.

Intended Market

This text is suitable for undergraduate and master's-level courses in financial markets, or financial institutions. To maximize students' comprehension, some of the more difficult questions and problems should be assigned in addition to the special applications at the end of each chapter.

Organization of the Text

Part 1 (Chapters 1 through 3) introduces the key financial markets and financial institutions, explains why interest rates change over time, and explains why yields vary among securities. Part 2 (Chapters 4 and 5) describes the functions of the Federal Reserve System (the Fed) and explains how its monetary policy influences interest rates and other economic conditions. Part 3 (Chapters 6 through 9) covers the major debt security markets, Part 4 (Chapters 10 through 12) describes equity securities markets, and Part 5 (Chapters 13 through 16) covers the derivative security markets. Each chapter in Parts 3 through 5 focuses on a particular market. The integration of each market with other markets is stressed throughout these chapters. Part 6 (Chapters 17 through 20) concentrates on commercial banking, and Part 7 (Chapters 21 through 26) covers all other types of financial services provided by financial institutions.

Courses that emphasize financial markets should focus on the first five parts (Chapters 1 through 16); however, some chapters in the section on commercial banking are also relevant. Courses

that emphasize financial institutions and financial services should focus on Parts 1, 2, 6, and 7, although some background on securities markets (Parts 3, 4, and 5) may be helpful. Professors may wish to focus on certain chapters of this book and skip others, depend ing on the intended coverage of the course they are teaching. Chapters can be rearranged without a loss in continuity. Regardless of the order in which chapters are studied, it is highly recommended that some questions and exercises from each chapter be assigned. These exercises may serve as a focal point for class discussion.

Coverage of Major Concepts and Events

Numerous concepts relating to recent events and current trends in financial markets are discussed throughout the chapters. These include the following:

- Concerns about systemic risk
- Behavioral finance in financial markets
- Expert networks used to access information
- Use of high frequency trading and robots (“bots”) to trade securities
- “Crowdfunding” as a popular financing method for businesses
- Changes in Federal Reserve operations and communication to financial markets
- The increasing popularity of virtual currencies
- Challenges in valuing companies that attempt to go public
- Performance of venture capital and private equity funding
- Emergence of private stock exchanges
- Dark pools used to trade stocks
- Governance in financial markets
- Value-at-risk applications
- Emergence of hedge funds
- Stress tests imposed on commercial banks
- Pension underfunding

Each chapter is self-contained, so professors can use classroom time to focus on the more complex concepts and rely on the text to cover the other concepts.

Features of the Text

The features of the text are as follows:

- Part-Opening Diagram. A diagram is provided at the beginning of each part to illustrate generally how the key concepts in that part are related.
- Objectives. A bulleted list at the beginning of each chapter identifies the key concepts in that chapter.

- Examples. Examples are provided to reinforce key concepts.
- Financial Reform. A Financial Reform icon in the margin indicates a discussion of financial reform as it applies to the topics covered in the chapter.
- Ethics. An Ethics icon in the margin indicates financial ethics topics covered in the chapter.

FINANCIAL REFORM

■■ Global Aspects. A Global Aspects icon in the margin indicates international coverage of the topic being discussed.
■■ Summary. A bulleted list at the end of each chapter summarizes the key concepts. This list corresponds to the list of objectives at the beginning of the chapter. ■■ Point/Counterpoint. A controversial issue is introduced, along with opposing arguments on that issue, and students are asked to offer their opinion. ■■ Questions and Applications. The Questions and Applications section at the end of each chapter tests students' understanding of the key concepts. These exercises may serve as homework assignments or study aids in preparation for exams.
■■ Critical Thinking Question. At the end of each chapter, students are challenged to use their critical thinking skills by writing a short essay on a specific topic that was discussed in the chapter. ■■ Interpreting Financial News. At the end of each chapter, students are challenged to interpret comments made in the media about the chapter's key concepts. This gives students practice in analyzing announcements by the financial media.

■■ Managing in Financial Markets. At the end of each chapter, students are placed in the position of financial managers and must make decisions about specific situations related to the key concepts in that chapter.
■■ Flowof Funds Exercise. A running exercise is provided at the end of each chapter to illustrate how a manufacturing company relies on all types of financial markets and financial services provided by financial institutions.
■■ Internet/Excel Exercises. At the end of each chapter, exercises introduce students to applicable information available on various websites, encourage them to apply Excel as a tool for examining related topics, or a combination of these. For example, the exercises allow students to assess yield curves, risk premiums, and stock volatility.
■■ Problems. Selected chapters include problems to test students' computational skills. ■■ WSJ Exercise. This exercise appears at the end of selected chapters and gives students an opportunity to apply information provided in **The Wall Street Journal** to specific concepts explained in that chapter.
■■ Integrative Problems. An integrative problem at the end of each part integrates the key concepts of chapters within that part.
■■ Comprehensive Project. This project, found in Appendix A, requires students to apply real data to several key concepts described throughout the book.
■■ Midtermand Final Self-Examinations. At the end of Chapter 16, a midterm self-exam is offered to test students' knowledge of financial markets. At the end of Chapter 26, a final self-exam is offered to test students' knowledge of financial institutions. An answer key is provided so that students can evaluate their answers after they take the exam.

The concepts in each chapter can be reinforced by using one or more of the features just listed. Professors' use of these features will vary depending on the level of their students and the course goals. A course that focuses mostly on financial markets may emphasize tools such as the WSJ Exercises and Part 1 of the Comprehensive Project (on taking positions in securities and derivative instruments). In contrast, a course that focuses on financial insti

tutions ma assin an exercise in which students must review recent annual reports see Part 2 of the Comprehensive Project) to determine how a particular financial institution's performance is affected by its policies, industry regulations, and economic conditions. In addition, the Internet/Excel Exercises on financial institutions give students practice in assessing the operations and performance of financial institutions.

New to this Edition: MindTap

MindTap™, Cengage's fully online, highly personalized learning experience combines read ings, multimedia activities, and assessments into a singular Learning Path. MindTap™ guides students through their course with ease and engagement with a learning path that includes an Interactive Chapter Reading, Algorithmic Practice Problems, and Homework Assignments powered by Aplia. These homework problems include rich explanations and instant grading, with opportunities to try another algorithmic version of the problem to bolster confidence with problem solving. Instructors can personalize the Learning Path for their students by customizing the robust suite of resources and adding their own content via apps that integrate into the MindTap™ framework seamlessly with Learning Management Systems.

Supplements to the Text

To access the instructor resources, go to **www.cengage.com/login**, log in with your faculty account username and password, and use **ISBN 9780357130797** to search for and add instructor resources to your account Bookshelf.

- Instructor's Manual. Revised by the author, the instructor's manual contains the chapter outline for each chapter and a summary of key concepts for discussion as well as answers to the end-of-chapter Questions and Problems.
- Test Bank. The expanded test bank, which has also been revised by the author, contains a large set of questions in multiple-choice or true/false format, including content questions as well as problems.
- Cognero™Test Bank. Cengage Learning Testing Powered by Cognero™ is a flexible, online system that allows you to author, edit, and manage test bank content from multiple Cengage Learning solutions; create multiple test versions in an instant; and deliver tests from your LMS, your classroom, or wherever you want. The Cognero™ Test Bank contains the same questions that are in the Microsoft® Word Test Bank. All question content is now tagged according to Tier I (Business Program Interdisciplinary Learning Outcomes) and Tier II (Finance-Specific) standards topic, Bloom's Taxonomy, and difficulty level.
- PowerPoint Slides. The PowerPoint slides clarify content and provide a solid guide for student note-taking. In addition to the regular notes slides, a separate set of exhibit-only PowerPoint slides is available.

Additional Course Tools

Cengage Learning Custom Solutions

Whether you need print, digital, or hybrid course materials, Cengage Learning Custom Solutions can help you create your perfect learning solution. Draw from Cengage Learning's extensive library of texts and collections, add or create your

own original work, and create customized media and technology to match your learning and course objectives. Our editorial team will work with you through each step, allowing you to concentrate on the most impor tant thing—your students. Learn more about all our services at **www.cengage.com/custom.**

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Jeff Madura
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Dr. Jeff Madura is presently Emeritus Professor of Finance at Florida Atlantic University. He has written several successful finance texts, including **International Financial Management** (now in its 13th edition). His research on financial markets and institutions has been published in

numerous journals, including **Journal of Financial and Quantitative Analysis**; **Journal of Banking and Finance**; **Journal of Money, Credit and Banking**; **Financial Management; Journal of Financial Research**; **Journal of Financial Services Research**; and **Financial Review**. Dr. Madura has received multiple awards for excellence in teaching and research, and he has served as a consultant for international banks, securities firms, and other multinational corporations. He has served as a director for the Southern Finance Association and Eastern Finance Association, and he is also former president of the Southern Finance Association.

Part 1 of this book focuses on the flow of funds across financial markets, interest rates, and security prices. Chapter 1 introduces the key financial markets and the financial institutions that participate in those markets. Chapter 2 explains how various factors influence interest rates and how interest rate movements in turn affect the values of securities purchased by financial institutions. Chapter 3 identifies factors other than interest rates that influence security prices. Participants in financial markets use this information to value securities and make investment decisions within financial markets.

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Chapter Objectives

The specific objectives of this chapter are to:

- Describe the types of financial markets that facilitate the flow of funds.
- Describe the types of securities traded within financial markets.
- Describe the role of financial institutions within financial markets.
- Explain how finan cial institutions are exposed to systemic risk.

A **financial market** is a market in which financial assets (securities) such as stocks and bonds can be purchased or sold. Funds are

government agencies. This chapter provides some background on financial markets and on the financial institutions that participate in them.

1-1 Role of Financial Markets

Financial markets transfer funds from those parties who have excess funds to those parties who need funds. They enable college students to obtain student loans, families to obtain mortgages, businesses to finance their growth, and governments to finance many of their expenditures.

transferred in finan cial markets when one party purchases financial assets previously held by another party. Financial markets facilitate the flow of funds, thereby allowing for financing and investing by households, firms, and

they spend are referred to as **surplus units** (or investors). They provide their net savings to the financial markets. Those participants who spend more money than they receive are referred to as **deficit units**. They access funds from financial markets so that they can spend more money than they receive. Many individu

Many households and businesses with excess funds are willing to supply funds to financial markets because they earn a return on their investment. If funds were not supplied, the financial markets would not be able to transfer funds to those who need them.

als provide funds to financial markets in some periods and access funds in other periods.

Those participants who receive more money than

Example College students are typically deficit units, as they often borrow from financial markets to support their education. After they obtain their degree, graduates may earn more income than they spend and become surplus units by investing their excess funds. A few years later, they may become deficit units again when they purchase a home. At this stage, they may provide funds to and access funds from financial markets simultaneously. That is, they may periodically deposit savings in a financial institution while also borrowing a large amount of money from a financial institution to buy a home. ●

Many deficit units such as firms and government agencies access funds from finan cial markets by issuing **securities**, which represent a claim on the issuer. **Debt securities** represent debt (also called **credit**, or **borrowed funds**) incurred by the issuer. Deficit units that issue the debt securities are borrowers. The surplus units that purchase debt securi ties are creditors, and they receive interest on a periodic basis (such as every six months). Debt securities have a maturity date, at which time the surplus units can redeem the securities and receive the principal (face value) from the deficit units that issued them.

Equity securities (also called **stocks**) represent equity or ownership in the firm. Some businesses prefer to issue equity securities rather than debt securities when they need funds but might not be financially capable of making the periodic interest payments required for debt securities. For example, a new social media company might want to reinvest all of its profits in the business to support its growth, so it would prefer to sell shares of stock in the company (issue equity securities) rather than make interest payments on debt securities.

1-1a Accommodating Corporate Finance Needs

A key role of financial markets is to accommodate corporate finance activity. Corporate finance (also called financial management) involves corporate decisions such as how much funding to obtain and which types of securities to issue when financing operations. The financial markets serve as the mechanism whereby corporations (acting as deficit units) can obtain funds from investors (acting as surplus units).

1-1b Accommodating Investment Needs

Another key role of financial markets is accommodating surplus units who want to invest in either debt or equity securities. Investment management involves decisions by investors regarding how to invest their funds. The financial markets offer investors access to a wide variety of investment opportunities, including securities issued by the U.S. Treasury and government agencies as well as securities issued by corporations.

Financial institutions (discussed later in this chapter) serve as intermediaries within the financial markets. They channel funds from surplus units to deficit units. For exam ple, they channel funds received from individuals to corporations. In this way, they con

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nect the investment management activity with the corporate finance activity, as shown in Exhibit 1.1. They also commonly serve as investors and channel their own funds to corporations.

Primary versus Secondary Markets

Primary markets facilitate the issuance of new securities. Thus, they allow corporations to obtain new funds, and offer a means by which investors can invest funds. **Secondary markets** facilitate the trading of existing securities, which allows investors to change their investments by selling securities that they own and buying other securities. Many types of debt securities have a secondary market, so that investors who initially purchased them in the primary market do not have to hold them until maturity. Primary market transactions provide funds to the initial issuer of securities; secondary market transactions do not.

Exhibit 1.1 How Financial Markets Facilitate Corporate Finance and Investment Management

Example Last year, Riverto Co. had excess funds and invested in newly issued Treasury debt securities with a 10-year maturity. This year, it will need $15 million to expand its operations. The company decides to sell its holdings of Treasury debt securities in the secondary market, even though those securities will not mature for nine more years. It receives $5 million from the sale. It also issues its own debt securities in the primary market today so that the company can obtain an additional $10 million. Riverto's debt securities have a 10-year maturity, so investors that purchase them can redeem them at maturity (in 10 years) or sell them before that time to other investors in the secondary market. ●

An important characteristic of securities that are traded in secondary markets is **liquidity**, which is the degree to which securities can easily be liquidated (sold) without a loss of value. Some securities have an active secondary market, meaning that there are many willing buyers and sellers of the security at a given moment in time. Investors often prefer highly liquid securities so that they can easily sell the securities whenever they want (without a loss in value). An active secondary market is especially desirable for debt secu rities that have a long-term maturity, because it allows investors flexibility to sell them at any time prior to maturity. Many investors would not even consider investing in long-term debt securities if they were forced to hold these securities until maturity.

Treasury securities are liquid because they are frequently issued by the U.S. Treasury, and many investors want to invest in them. Therefore, investors who previously purchased Treasury securities can sell them at any time.

1-2 Securities Traded in Financial Markets

Securities can be classified as money market securities, capital market securities, or deriva tive securities.

1-2a Money Market Securities

Money markets facilitate the sale of short-term debt securities by deficit units to surplus units. The securities traded in this market are referred to as **money market securities**, meaning that they are debt securities that have a maturity of one year or less. These secu rities generally have a relatively high degree of liquidity, not only because of their short term maturity but also because they are desirable to many investors and commonly have an active secondary market. Money market securities tend to have a low expected return but also a low degree of credit (default) risk. Common types of money market securities include Treasury bills (issued by the U.S. Treasury), commercial paper (issued by corpora tions), and negotiable certificates of deposit (issued by depository institutions).

1-2b Capital Market Securities

Capital markets facilitate the sale of long-term securities by deficit units to surplus units. The securities traded in this market are referred to as **capital market securities**. Capital market securities are commonly issued to finance the purchase of capital assets, such as buildings, equipment, or machinery. Three frequently encountered types of capital market securities are bonds, mortgages, and stocks.

Bonds Bonds are long-term debt securities issued by the Treasury, government agencies, and corporations to finance their operations. They provide a return to investors in the form of interest income (coupon payments) every six months. Because bonds represent debt, they specify the amount and timing of interest and principal payments to investors who purchase them. At maturity, investors holding the debt securities are paid the principal. Bonds commonly have maturities of between 10 and 20 years.

www.investinginbonds .com
Data and other information about bonds.

Treasury bonds are perceived to be free from default risk because they are issued by the U.S. Treasury. In contrast, bonds issued by corporations are subject to default (credit) risk because the issuer could default on its obligation to repay the debt. These bonds must offer a higher expected return than Treasury bonds to compensate investors for that default risk.

Bonds can be sold in the secondary market if investors do not want to hold them until maturity. Because the prices of debt securities change over time, they may be worth less when sold in the secondary market than when they were purchased.

Mortgages Mortgages are long-term debt obligations created to finance the purchase of real estate. Residential mortgages are obtained by individuals and families to purchase homes. Financial institutions serve as lenders by providing residential mortgages in their role as a financial intermediary. They can pool deposits received from surplus units and lend those funds to an individual who wants to purchase a home. Before granting a mortgage, these lenders assess the likelihood that the borrower will repay the loan based on certain criteria such as the borrower's income level relative to the value of the home. They offer prime mortgages to borrowers who qualify based on these criteria. The home serves as collateral in the event that the borrower is not able to make the mortgage payments.

Subprime mortgages are offered to some borrowers who do not have sufficient income to qualify for prime mortgages or who are unable to make a down payment. Subprime mortgages carry a higher risk of default, so the lenders providing these mortgages charge a higher interest rate (and additional up-front fees) to compensate for that factor. Subprime mortgages received much attention in 2008 because of their high default rates, which led to the credit crisis. Many lenders are no longer willing to provide subprime mortgages, and recent regulations (described later in this chapter) have raised the minimum qualifi cations necessary to obtain a mortgage.

Commercial mortgages are long-term debt obligations created to finance the purchase of commercial property. Real estate developers rely on commercial mortgages so that they can build shopping centers, office buildings, or other facilities. Financial institutions serve as lenders by providing commercial mortgages. By channeling funds from surplus units (depositors) to real estate developers, they serve as financial intermediaries and facilitate the development of commercial real estate.

Mortgage-Backed Securities Mortgage-backed securities are debt obligations representing claims on a package of mortgages. Many types of mortgage-backed securities exist. In their simplest form, the investors who purchase these securities receive monthly payments that are made by the homeowners on the mortgages backing the securities.

Examle Mountain Savings Bank originates 100 residential mortgages for home buyers and will service the mortgages by processing the monthly payments. However, the bank does not want to use its own funds to finance the mortgages, so it issues mortgage-backed securities representing this package of mortgages to eight financial institutions that are willing to purchase all of these securities. Each month, when Mountain Savings Bank receives interest and principal payments on the mortgages, it passes those payments on to the eight financial institutions that purchased the mortgage-backed securities and thereby provided the financing to the homeowners. If some of the homeowners default on their mortgages, the payments will be reduced, as will the return on investment earned by the financial institutions that purchased the mortgage-backed securities. The securities they purchased are backed (collateralized) by the mortgages.

If Mountain Savings Bank is not experienced at issuing mortgage-backed securities, another financial institution may participate by bundling Mountain's 100 mortgages with mortgages originated by other insti tutions. Then the financial institution issues mortgage-backed securities that represent all the mortgages in the bundle. Any investor that purchases these mortgage-backed securities is partially financing the 100 mortgages at Mountain Savings Bank and all the other mortgages in the bundle that are backing these securities. ●

During the 2004–2006 period, housing prices increased rapidly, and many financial institutions used their funds to purchase mortgage-backed securities, some of which rep resented bundles of subprime mortgages. These financial institutions incorrectly presumed that the homes would serve as sufficient collateral if the mortgages defaulted. In 2008, many borrowers with subprime mortgages defaulted and home prices plummeted, which meant that the collateral was not adequate to cover the credit provided. Consequently, the values of mortgage-backed securities also plummeted, and the financial institutions hold ing these securities experienced major losses.

Stocks Stocks (or equity securities) represent partial ownership in the corporations that issue them. They are classified as capital market securities because they have no maturity; therefore they serve as a long-term source of funds. Investors who purchase stocks (referred to as stockholders or shareholders) issued by a corporation in the primary market can sell the stocks to other investors at any time in the secondary market. However, some corporate stocks are more liquid than others. Millions of shares of stocks of large corporations are traded in the secondary market on any given day, as there are many investors who are willing to buy them. Stocks of small corporations are less liquid, because the secondary market for these stocks is not as active.

Some corporations provide income to their stockholders by distributing a portion of their quarterly earnings in the form of dividends. Other corporations retain and reinvest all of their earnings in their operations, which increases the company's growth potential.

As corporations grow and increase in value, the value of their stock increases; investors can then earn a capital gain from selling the stock for a higher price than they paid for it. Thus, investors can earn a return from stocks in the form of both periodic dividends (if there are any) and a capital gain when they sell the stock. However, stocks are subject to risk because their future prices are uncertain. When a firm performs poorly, its stock price commonly

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www.cboe.com Information about derivative securities.

declines, resulting in negative returns to investors.

1-2c Derivative Securities

Like money market and capital market securities, derivative securities are traded in finan cial markets. **Derivative securities** are financial contracts whose values are derived from the values of underlying assets (such as debt securities or equity securities). Many derivative securities enable investors to engage in speculation and risk management.

Speculation Derivative securities allow an investor to speculate on movements in the value of the underlying assets without having to purchase those assets. Some derivative securities allow investors to benefit from an increase in the value of the underlying assets, whereas others allow investors to benefit from a decrease in the
assets' value. Investors who speculate in derivative contracts can achieve higher returns than if they had speculated in the underlying assets, but they are also exposed to higher risk.

Risk Management By investing in derivative securities that will generate gains if the value of the underlying assets declines, financial institutions and other firms can use derivative securities to reduce their exposure to the risk that the value of their existing investments in those assets may decline. Thus, if a firm maintains investments in bonds, it can take specific positions in derivative securities that will generate gains if those bonds' value declines. In this way, derivative securities can be used to reduce a firm's risk. Put simply, the loss on the bonds is offset by the gains on the derivative securities.

1-2d Valuation of Securities

Each type of security generates a unique stream of expected cash flows to investors. The valuation of a security is measured as the present value of its expected cash flows, dis counted at a rate that reflects the uncertainty surrounding the cash flows.

Debt securities are easier to value than equity securities because they promise to provide investors with specific payments (interest and principal) until they mature. The stream of cash flows generated by stocks is more difficult to estimate because some stocks do not pay dividends; instead, investors receive cash flows only when they sell the stocks, which occurs at different times for different investors. Since the valuation of a stock at a future point in time is uncertain, so is the selling price of a stock at a future point in time. Inves
tors often rely on financial statements issued by firms when assessing how stock prices might change in the future. In particular, investors rely on accounting reports of a firm's revenues, expenses, and earnings as a basis for estimating that company's future cash flows. Firms with publicly traded stock are required to disclose financial information and finan
cial statements to the public.

Impact of Information on Valuation Investors can attempt to estimate the future cash flows that they will receive by obtaining information that may influence a security's future cash flows. The valuation process is illustrated in Exhibit 1.2.

Some investors rely mostly on economic or industry information to value a security, whereas others rely more on financial statements provided by the firm, or

published opinions about the firm's management. When investors receive new information about a security that clearly indicates the likelihood of higher cash flows or less uncertainty sur

rounding the cash flows, they revise their valuations of that security upward, consequently increasing the demand for the security. In addition, investors that previously purchased that security and were planning to sell it in the secondary market may decide not to sell.

Exhibit 1.2 Use of Information to Make Investment Decisions

increase the discount rate used in valuation. Their valuations of the security are revised downward, which results in a lower demand and an increased supply of that security for sale in the secondary market. Consequently, the equilibrium price declines.

In an **efficient market**, securities are rationally priced. If a security is clearly under valued based on public information, some investors will capitalize on the discrepancy by purchasing that security. This strong demand for the security will push the security's price higher until the discrepancy

Web

finance.yahoo.com Market quotations and overview of financial market activity.

disappears. The investors who recognized the discrepancy will be rewarded with higher returns on their investment. Their actions to capitalize on valuation discrepancies typically push security prices toward their proper price levels, based on the information that is available.

amount of information that is easily accessible. Prices of securities are quoted online and can be obtained at any given moment by investors. For some securities, investors can track the actual sequence of transactions. Furthermore, orders to buy or sell many types of securities can be submitted online, which expedites the adjustment in security prices to new information.

This results in a smaller supply of that security for sale (by investors who had previously purchased it) in the secondary market. In turn, the market price of the security rises to a new equilibrium level. Conversely, when investors receive unfavorable information, they reduce the expected cash flows or

Efficiency in the stock market is enhanced by the

Impact of Behavioral Finance on Valuation

In some cases, a security may be mispriced because of the psychology involved in the decision making.

Behavioral finance is the application of psychology to financial decision making. It can offer a reason why markets are not always efficient. Behavioral finance can sometimes explain why a security's

price moved abruptly, even though public information about the company's expected future cash flows did not change.

Example In recent years, after several states legalized the recreational use of marijuana, some companies with very little experience in any business related to marijuana announced that they were positioned to capitalize

on the expected growth in this market. Many investors wanted to benefit from this potential growth and quickly purchased the stocks of companies in the newly emerging industry. However, some investors did not carefully check the business plan, operations, or financial condition of these companies. Consequently, the strong demand by investors for stocks of marijuana companies without much experience caused their stock prices to increase dramatically, only for those prices to crash after investors subjected their prospects to a closer review. ●

Behavioral finance can even be used to explain abrupt stock price movements in the entire stock market. In some periods, investors seem to be excessively optimistic about stock market conditions, and their stock-buying frenzy can push the prices of the entire stock market higher. This leads to a stock price bubble, which subsequently bursts once investors consider fundamental characteristics that affect a firm's expected future cash flows rather than hype when valuing stocks.

Uncertainty Surrounding Valuation of Securities

Even if markets are efficient, the valuation of a firm's security is subject to much uncertainty because investors have limited information available to value that security. However, a firm's managers may possess information about its financial condition that is not available to investors, a situation known as **asymmetric information**. Furthermore, although all investors can access the same public information about a firm, they may interpret it in different ways, which leads to different valuations of the firm and uncertainty surrounding the firm's stock price.

The higher the degree of uncertainty about a security's proper valuation, the higher the risk is from investing in that security. From the perspective of an investor who purchases a security, risk represents the potential deviation of the security's actual return from what was expected. For any given type of security, risk levels among the issuers of that security can vary.

Example Nike stock provides cash flows to investors in the form of quarterly dividends and capital gains when an investor sells the stock. Both the future dividends and the future stock price are uncertain. Thus, the cash flows the Nike stock will provide to investors over a future period are uncertain, which means the return from investing in Nike stock over that period is uncertain.

Yet the cash flow provided by Nike's stock is less uncertain than that provided by a small, young, publicly traded technology company. Because the return on the technology stock over a particular period is more uncertain than the return on Nike stock, the technology stock has more risk. ●

1-2e Securities Regulations on Financial Disclosure

Many regulations exist that attempt to ensure that businesses disclose accurate financial information, so that investors participating in financial markets can more properly value stocks and debt securities issued by firms. In addition, securities regulations attempt to ensure that the information disclosed by firms is made available to all prospective investors, so that no investors have an unfair information advantage over other investors.

Securities Act of 1933 The Securities Act of 1933 was intended to ensure complete disclosure of relevant financial information on publicly offered securities and to prevent fraudulent practices in selling these securities.

Securities Exchange Act of 1934 The Securities Exchange Act of 1934 extended the disclosure requirements to secondary market issues. It also declared illegal a variety of deceptive practices, such as issuing misleading financial statements and engaging in trading strategies designed to manipulate the market price. In addition, it established the Securities and Exchange Commission (SEC) to oversee the securities markets, and the SEC has implemented additional regulations over time. Securities laws seek only to ensure full disclosure of information and thereby protect against fraud; they do not prevent investors from making poor investment decisions.

Sarbanes-Oxley Act of 2002 Firms that have issued stock and debt securities are required have their financial statements audited by independent auditors (not their own employees) to verify that their financial information is accurate. However, some auditors might be motivated to ignore any misleading information disclosed by a firm so that they can receive more business from that firm in the future. Furthermore, the executives of the company can benefit from misleading information because their compensation may be tied to the company's reported profits or its stock price. In response to several well documented cases of fraudulent financial reporting by companies that were not detected by auditors, the U.S. Congress enacted the Sarbanes-Oxley Act of 2002. It imposed restrictions to ensure proper auditing by auditors and proper oversight of the audit by the firm's board of directors. It also required key executives of the

company to sign off on the financial statements, and imposed penalties on them if financial fraud was later detected. By establishing these rules, regulators tried to eliminate or at least reduce the amount of asymmetric information surrounding each publicly traded firm.

Nevertheless, some companies continue to engage in fraudulent financial reporting. Such behavior is unfair to investors who trust the financial reports and may overpay when purchasing the securities issued by such companies. If investors do not trust financial disclosures by companies, they may be unwilling to participate in financial markets. The lack of trust can cause markets to be less liquid due to very limited investor participation.

1-2f International Financial Markets

Financial markets are continuously being developed throughout the world to improve the transfer of securities between surplus and deficit units. The financial markets are much more developed in some countries than in others, and they also vary in terms of their liquidity.

The level of liquidity in each country's financial markets is influenced by local securities laws regarding financial disclosure. In general, countries that require more financial dis closure tend to have more liquid financial markets, as investors are more willing to partici pate when they can obtain more information about the firms whose securities they trade.

Each country has its own laws regarding shareholder rights. Investors may be more willing to participate in their country's financial markets if they have the right to bring a lawsuit against a local firm that engaged in fraudulent financial disclosure.

The enforcement of securities laws also varies from country to country. Investors may be more willing to participate in financial markets if they believe that the securities laws are being strictly enforced. Conversely, investors may avoid their country's markets if the local government fails to enforce the laws that protect investors.

Role of Foreign Exchange Market

International financial transactions typically require the exchange of currencies. When U.S. investors purchase German stock, their U.S. dollars are converted to euros. When they sell the stock, the euros they receive will be converted back to dollars. The **foreign exchange market** facilitates these kinds of currency exchanges.

International Integration of Financial Markets

Under favorable economic conditions, the international integration of financial markets allows governments and corporations easier access to funding from creditors or investors in other countries to support their growth. In addition, investors and creditors in any country can benefit from the investment opportunities available in other countries.

Conversely, under unfavorable economic conditions, the international integration of

financial markets allows one country's financial problems to adversely affect other coun tries. When the U.S. stock market experiences an abrupt decline, financial institutions outside the United States that invest in U.S. stocks are adversely affected.

exchanges involving different currencies. Many financial institutions serve as intermediaries in the foreign exchange market by matching up participants who want to exchange one currency for another. Some of these financial institutions also serve as dealers by taking positions in currencies to accommodate foreign exchange requests.

Like securities, most currencies have a market-determined price (exchange rate) that changes in response to supply and demand. If the aggregate demand by corporations, gov ernment agencies, and individuals for a given currency shifts suddenly, or if the aggregate supply of that currency for sale (to be exchanged for another currency) changes abruptly, the price of the currency (exchange rate) will change. The exchange rate of a currency can fluctuate substantially over time, which in turn affects the return earned by investors who invest in securities in international financial markets. U.S. investors benefit when the cur rency denominating a foreign security that they purchased appreciates against the dollar over their investment horizon.

1-3 Role of Financial Institutions

Because financial markets are **imperfect**, securities buyers and sellers do not have full access to all possible information. Individuals with available funds usually are not capable of identifying creditworthy borrowers to whom they could lend those funds. In addition, they do not have the expertise to assess the creditworthiness of potential borrowers. Financial institutions are needed to resolve these kinds of limitations caused by market imperfections. They accept funds from surplus units and channel the funds to deficit units. Without financial institutions, the information and transaction costs of financial market transactions would be excessive. Financial institutions can be classified as depository and nondepository institutions.

1-3a Role of Depository Institutions

Depositor institutions accept deposits from surplus units and provide credit to deficit units through loans and purchases of securities. They are popular financial institutions for the following reasons:

- They offer deposit accounts that can accommodate the amount and liquidity char acteristics desired by most surplus units.
- They repackage funds received from deposits to provide loans of the size and matu rity desired by deficit units.
- They are willing to accept the risk of default on loans that they provide.
- They have more expertise than individual surplus units in evaluating the creditwor thiness of prospective deficit units.
- They diversify their loans among numerous deficit units, which means they can absorb defaulted loans better than individual surplus units could.

To appreciate these advantages, consider what the flow of funds from surplus units to deficit units

would be like if depository institutions did not exist. Each surplus unit would have to identify a deficit unit desiring to borrow the precise amount of funds available for the precise time period in which funds would be available. Furthermore, each surplus unit would have to perform the credit evaluation of the potential borrower and incur the risk of default. Under these conditions, many surplus units would likely hold their funds closely rather than channel them to deficit units. Hence, the flow of funds from surplus units to deficit units would be disrupted.

When a depository institution offers a loan, it is acting as a creditor, just as if it had purchased a debt security. The loan agreement is less marketable in the secondary market than a debt security, however, because the loan agreement is personalized for the particu lar borrower and contains detailed provisions that can differ significantly among loans. Potential investors would need to review all provisions before purchasing loans in the secondary market.

A more specific description of each depository institution's role in the financial markets follows.

Commercial Banks In aggregate, commercial banks are the most dominant type of depository institution. They serve surplus units by offering a wide variety of deposit accounts, and they transfer deposited funds to deficit units by providing direct loans or purchasing debt securities. Commercial bank operations are exposed to risk because their loans and many of their investments in debt securities are subject to the risk of default by the borrowers.

Commercial banks serve both the private and public sectors; their deposit and lending services are utilized by households, businesses, and government agencies. Some commer cial banks (including Bank of America, JPMorgan Chase, Citigroup, and Wells Fargo) have more than $1 trillion in assets.

Some commercial banks receive more funds from deposits than they need to make loans or invest in securities. Other commercial banks need more funds to accommodate cus tomer requests than the amount of funds that they receive from deposits.

Web

www.fdic.gov

Information and news about banks and savings institutions.

The **federal funds market** facilitates the flow of funds between depository institutions (including banks). A bank that has excess funds can lend to a bank with deficient funds for a short-term period, such as one to five days. In this way, the federal funds market facilitates the flow of funds from banks that have excess funds to banks that need funds.

Commercial banks are subject to regulations that are intended to limit their exposure to the risk of failure. In particular, banks are required to maintain a minimum level of capital, relative to their size, so that they have a cushion to absorb possible losses from defaults on some loans provided to households or businesses. The Federal Reserve ("the Fed") serves as a regulator of banks.

Savings Institutions Savings institutions, which are sometimes referred to as thrift institutions, are another type of depository institution. Savings institutions include savings and loan associations (S&Ls) and savings banks. Like commercial banks, savings institutions take deposits from surplus units and then channel these deposits to deficit units. Savings banks are similar to S&Ls except that they have more diversified uses of funds. Over time, this difference, which was once quite pronounced, has narrowed. Savings institutions can be owned by shareholders, but most are mutual (depositor owned). Like commercial banks, savings institutions rely on the
their business to credit union members, who share a common bond (such as a common employer or union). Like savings institutions, they are sometimes classified as thrift institutions in an effort to distinguish them from commercial banks.
federal funds market to lend their excess funds or to borrow funds on a short-term basis.
Whereas commercial banks concentrate on commercial (business) loans, savings insti tutions concentrate on residential mortgage loans. In most cases, mortgage loans are per ceived to exhibit a relatively low level of risk.

Credit Unions Credit unions differ

Because of the "common bond" characteristic, credit unions tend to be much smaller than other depository institutions. They use most of their funds to provide loans to their members. Some of the largest credit unions (e.g., the Navy Federal Credit Union, the State Employees Credit Union of North Carolina, the Pentagon Federal Credit Union) have assets of more than $20 billion.

1-3b Role of Nondepository Financial Institutions

Nondepository institutions generate funds from sources other than deposits but also play a major role in financial intermediation. These institutions are briefly described here and are covered in more detail in Part 7.

Finance Companies Most finance companies obtain funds by issuing securities and then lend those funds to individuals and small

businesses. The functions of finance companies and depository institutions overlap, although each type of institution concentrates on a particular segment of the financial markets (as explained in the chapters devoted to these institutions).

Web

finance.yahoo.com/ mutualfunds
Information about mutual funds.

Mutual Funds Mutual funds sell shares to surplus units and use the funds received to purchase a portfolio of securities. They are the dominant nondepository financial institution when measured in total assets. Some mutual funds concentrate their investments in capital market securities, such as stocks or bonds. Others, known as **money market mutual funds**, concentrate in money market securities. By investing in mutual funds and money market funds, small savers are able to invest in a diversified portfolio of securities

Securities Firms Securities firms provide a wide variety of functions in financial while committing only a relatively small amount of money to each security.
markets. Some securities firms act as a **broker**, executing securities transactions between two parties for a commission (or markup). The commission as a percentage of the transaction amount will likely be higher for less common transactions, because more time is needed to match up buyers and sellers. The commission will also likely be higher for transactions involving relatively small amounts, so that the broker will be adequately compensated for the time required to execute the transaction.
Securities firms also often act as **dealers**, making a

market in specific securities by maintaining an inventory of securities. Whereas a broker's income is mostly based on commissions, a dealer's income is influenced by the performance of the security portfolio maintained. Some dealers also provide brokerage services and therefore earn income from both types of activities.

In addition to brokerage and dealer services, securities firms may provide underwriting and advising services. The underwriting and advising services are commonly referred to as **investment banking**, and the securities firms that specialize in these services are sometimes referred to as **investment banks**. Some securities firms place newly issued securities for cor

porations and government agencies; this task differs from traditional brokerage activities because it involves the primary market. When securities firms

to property. These companies charge fees (called premiums) in exchange for the insurance that they provide. They invest the funds received in the form of premiums until the funds are needed to cover insurance claims. Insurance companies commonly invest these funds in stocks or bonds issued by corporations or in bonds issued by the government. By financing the needs of deficit units in this way, they serve as important financial intermediaries. Their overall performance is linked to the performance of the stocks and bonds in which they invest. Large insurance companies include State Farm, Allstate, Travelers, CNA Financial, and Liberty Mutual.

underwrite newly issued securities, they may either sell the securities for a client at a guaranteed price or simply sell the securities at the best price they can get for their client.

Some securities firms offer advisory services on mergers and other forms of corporate restructuring. In addition to helping a company plan its restructuring, the securities firm executes the change in the client's capital structure by placing the securities issued by the company.

Insurance Companies Insurance companies provide individuals and firms with insurance policies that reduce the financial burden associated with death, illness, and damage

Pension Funds Many corporations and government agencies offer pension plans to their employees. The employees and sometimes their employers periodically contribute funds to the plan, and pension funds manage the money until the individuals withdraw the funds for their retirement. The money that is contributed to individual retirement accounts is commonly invested by the pension funds in stocks or bonds issued by corporations or in bonds issued by the government. Thus, pension funds are important financial intermediaries that finance the needs of deficit units.

1-3c Comparison of Roles among Financial Institutions

The role of financial institutions in facilitating the flow of funds from individual surplus units (investors) to deficit units is illustrated in Exhibit 1.3. Surplus units are shown on the left side of the exhibit, and deficit units are shown on the right. Three different flows of funds from surplus units to deficit units are depicted in the exhibit. One set of flows represents deposits from surplus units that are transformed by depository institutions into loans for deficit units. A second set of flows represents purchases of securities (commercial paper) issued by finance companies that are transformed into finance company loans for deficit units. A third set of flows reflects the purchases of shares issued by mutual funds, which are used by the mutual funds to purchase debt and equity securities of deficit units.

The deficit units also receive funding from insurance companies and pension funds. Because insurance companies and pension funds purchase massive amounts of stocks and bonds, they finance much of the expenditures made by large deficit units, such as corpora tions and government agencies. Financial institutions such as commercial banks, insurance companies, mutual funds, and pension funds take charge of investing funds that they have received from surplus units, so they are often referred to as **institutional investors.**

Securities firms are not shown in Exhibit 1.3, but they play an important role in facilitating the flow of funds. Many of the transactions between the financial institutions and deficit units are executed by securities firms. Furthermore, some funds flow directly from surplus units to deficit units as a result of security transactions, with securities firms serving as brokers.

Exhibit 1.3 Comparison of Roles among Financial Institutions

Purchase

Securities

Purchase

Shares

Premiums

Employee

Contributions

Deposits

In recent years, the flow of funds has been facilitated by peer-to-peer lending websites that enable persons with excess money to make loans to persons needing funds. The web site verifies information about a potential borrower such as employment, income, and credit rating and assigns the borrower a risk score. Lenders can then offer loans with the interest rate based on the borrower's risk.

Institutional Role as a Monitor of Publicl Traded Firms In addition to filling the roles described in Exhibit 1.3, financial institutions serve as monitors of publicly traded firms. Because insurance companies, pension funds, and some mutual funds are major investors in stocks, they can influence the management of publicly traded firms. In recent years, many large institutional investors have publicly criticized specific firms for poor management, which has resulted in corporate restructuring or even the firing of executives in some cases. Thus, institutional investors not only provide financial support to companies, but also exercise some degree of corporate control over them. By serving as activist shareholders, they can help ensure that managers of publicly held corporations make appropriate decisions that are in the best interests of the shareholders.

1-3d Relative Importance of Financial Institutions

Financial institutions hold assets equal to approximately $70 trillion. Among depository institutions, commercial banks hold the most assets, with nearly $17 trillion in aggregate. Among nondepository institutions, mutual funds hold the largest amount of assets, with approximately $18 trillion in aggregate.

Exhibit 1.4 summarizes the main sources and uses of funds for each type of financial institution. Households with savings are served by depository institutions.

Households with deficient funds are served by depository institutions and finance companies. Large corpora
tions and governments that issue securities obtain financing from all types of financial insti
tutions. Several agencies regulate the various types of financial institutions, and the various regulations may give some financial institutions a comparative advantage over others.

Exhibit 1.4 Summary of Institutional Sources and Uses of Funds

Commercial banks	Deposits from households, businesses, and government agencies	Purchases of government and corporate securities; loans to businesses and households
Savings institutions	Deposits from households, businesses, and government agencies	Purchases of government and corporate securities; mortgages and other loans to households; some loans to businesses
Credit unions	Deposits from credit union members	Loans to credit union members
Finance companies	Securities sold to households and businesses	Loans to households and businesses
Mutual funds	Shares sold to households, businesses, and government agencies	Purchases of long-term government and corporate securities
Money market funds	Shares sold to households, businesses, and government agencies	Purchases of short-term government and corporate securities
Insurance companies	Insurance premiums and earnings from investments	Purchases of long-term government and corporate securities
Pension funds	Employer/employee contributions	Purchases of long-term government and corporate securities

1-3e Consolidation of Financial Institutions

In recent years, some financial institutions have merged in an effort to achieve economies of scale. By increasing the volume of services produced with a given infrastructure, the average cost of providing the services (such as loans) can be reduced.

Historically, each kind of financial service (such as banking, mortgages, brokerage, and insurance) was provided by a different type of
financial institution due to regulations that prevented firms from offering a range of services. As these regulations were loosened over the last 20 years, firms that had specialized in one service expanded into other finan
cial services. By becoming a financial conglomerate, they could capitalize on economies of scope. As financial institutions spread into other financial services, the competition for customers desiring the various types of financial services increased. In turn, prices of financial services declined in response to the competition.

Exhibit 1.5 depicts the typical organizational structure of a financial conglomerate. Although the operations of each type of financial service are commonly managed sepa rately, a financial conglomerate offers advantages to customers who prefer to obtain all of their financial services from a single financial institution. Because a financial conglomer ate is more diversified, it may be less exposed to a possible decline in customer demand for any single financial service. Many commercial banks now offer an expansive set of financial services.

Global Consolidation of Financial Institutions

Many financial institutions have expanded internationally to capitalize on their

expertise. Notably, commercial banks, insurance companies, and securities firms have all expanded through international mergers. An international merger between financial institutions enables the merged company to offer the services of both entities to its entire customer base. For example, a U.S. commercial bank may specialize in lending while a European securities firm specializes

Exhibit 1.5 Organizational Structure of a Financial Conglomerate

in services such as underwriting securities. A merger between the two entities allows the U.S. bank to provide its services to the European customer base (clients of the European securities firm) and allows the European securities firm to offer its services to the U.S. customer base. By combining specialized skills and customer bases, the merged financial institutions can offer more services to clients and gain an international customer base.

The adoption of the euro by 19 European countries has increased business between those countries and created a more competitive environment in Europe. European financial institutions, which had primarily competed with other financial institutions based in their own country, recognized that they would now face more competition from financial institutions in other countries with the development of the eurozone.

Many other financial institutions have attempted to benefit from opportunities in emerging markets. For example, some large securities firms have expanded into many countries to offer underwriting services for firms and government agencies. The need for this service has increased most dramatically in countries where businesses have been privatized. In addition, commercial banks have expanded into emerging markets to provide loans. Although this move allows them to capitalize on opportunities in these countries, it also exposes them to financial problems in these countries.

1-4 Systemic Risk among Financial Institutions

Given the frequent business transactions between the various types of financial institutions, financial problems that occur at one or a few financial institutions can quickly spread to others. **Systemic risk** is defined as the spread of financial problems among financial institutions and across financial markets that could cause a collapse in the financial system. It exists because financial institutions invest their funds in similar types of securities and therefore have similar exposure to large declines in the prices of these securities. Furthermore, they commonly engage in various loan and guarantee arrangements that cause one financial institution to rely on others for payment. The subsequent bankruptcy of one large financial institution can cause defaults on payments to several other financial institutions, which might reduce their ability to cover their respective obligations to other financial institutions. This can result in bankruptcy for many financial institutions.

During the credit crisis of 2008 and 2009, mortgage defaults affected financial institutions in several ways. First, many financial institutions that originated mortgages shortly before the crisis sold them to other financial institutions (i.e., commercial banks, savings institutions, mutual funds, insurance companies, securities firms, and pension funds). Therefore, even financial institutions that were not involved in the mortgage origination process experienced large losses because they purchased the mortgages originated by other financial institutions.

Second, many other financial institutions that invested in mortgage-backed securities received lower payments as mortgage defaults occurred. Third, some financial institutions (especially securities firms) relied heavily on short-term debt to finance their operations and used their holdings of mortgage-backed securities as collateral. But when the prices of mortgage-backed securities plummeted, they could not issue new short-term debt to pay off the principal on maturing debt.

Fourth, as mortgage defaults increased, there was an excess of unoccupied housing. There was no need to construct new homes, so construction companies laid off many employees. As the economy weakened, the prices of many equity securities declined by more than 40 percent. Eventually, most financial institutions that invested heavily in equities experienced large losses on their investments during the credit crisis.

The U.S. government intervened in an attempt to improve the economy and rescued some financial institutions. It also imposed new regulations on the mortgage markets (as explained in Chapter 9) in an effort to prevent a similar

type of credit crisis from occur ring in the future.

Summary

- Financial markets facilitate the transfer of funds from surplus units to deficit units. Because funding needs vary among deficit units, different types of financial markets have been established. The primary market allows for the issuance of new securities, and the sec ondary market allows for the sale of existing securities. Securities can be classified as money market (short term) securities or capital market (long-term) secu rities. Common capital market securities include bonds, mortgages, mortgage-backed securities, and stocks. The valuation of a security represents the present value of future cash flows that it is expected to generate. New information that indicates a change in expected cash flows or degree of uncertainty affects the prices of securities in the financial markets.
- Depository and nondepository institutions help to finance the needs of deficit units. The main deposi tory institutions are commercial banks, savings insti tutions, and credit unions. The main nondepository institutions are finance companies, mutual funds, pension funds, and insurance companies.

Point/Counterpoint

- Many financial institutions have been consolidated (due to mergers) into financial conglomerates, in which they serve as subsidiaries of the conglom erate while conducting their specialized services. In this way, some financial conglomerates are able to provide all types of financial services. Consolidation allows for economies of scale and scope, which can enhance cash flows and increase the financial insti tution's value. In addition, consolidation can diver sify the institution's services and increase its value by reducing risk.
- Financial institutions are subject to systemic risk, because they commonly invest in the same types of securities and are similarly exposed to condi tions that could cause the prices of those securities to decline substantially. The credit crisis of 2008 and 2009 illustrates how massive mortgage defaults can cause a major decline in the prices of mortgage backed securities and equity securities, which are investments commonly held by many types of finan cial institutions.

Will Computer Technology Cause Financial Intermediaries to Become Extinct?

Point Yes. Financial intermediaries benefit from access to information. As information becomes more accessible, individuals will have the information they need before investing or borrowing funds. They will not need financial intermediaries to make their decisions.

Counterpoint No. Individuals rely not only on information but also on expertise. Some financial intermediaries specialize in credit analysis so that they can make wise choices when offering loans. Surplus units will continue to provide funds to financial inter mediaries, rather than make direct loans, because they are not capable of credit analysis even if more infor mation about prospective borrowers is available. Some financial intermediaries no longer have physical build ings for customer service, but they still require agents who have the expertise to assess the creditworthiness of prospective borrowers. Who Is Correct? Use the Internet to learn more about this issue and then formulate your own opinion.

Questions and Applications

1. Surplus and Deficit Units Explain the meaning of surplus units and deficit units. Provide an example of each. Which types of financial institutions do you deal with? Explain whether you are acting as a surplus unit or a deficit unit in your relationship with each financial institution.

2. Types of Markets Distinguish between primary and secondary markets. Distinguish between money and capital markets.

3. Imperfect Markets Distinguish between perfect and imperfect security markets. Explain why the exis tence of imperfect markets creates a need for financial intermediaries.

4. Efficient Markets Explain the meaning of efficient markets. Why might we expect markets to be efficient most of the time? In recent years, several securities firms have been guilty of using inside infor mation when purchasing securities, thereby achieving returns well above the norm (even when accounting for risk). Does this suggest that the security markets are not efficient? Explain.

5. Securities Laws What was the purpose of the Securities Act of 1933? What was the purpose of the Securities Exchange Act of 1934? Do these laws pre vent investors from making poor investment deci sions? Explain.

6. International Barriers Discuss why many financial institutions have expanded internationally in recent years. What advantages can be obtained through an international merger of financial institutions?

7. Stock Valuation What type of information do investors rely on when determining the proper value of stocks?

8. Securities Firms What are the functions of securi ties firms? Many securities firms employ brokers and dealers. Distinguish between the functions of a broker and those of a dealer, and explain how each type of professional is compensated.

9. Mis-valued Marijuana Stocks Explain why some stocks in the marijuana industry were mis-valued when several states legalized the recreational use of marijuana.

10. Marketability Commercial banks use some funds to purchase securities and other funds to make loans. Why are the securities more marketable than the loans in the secondary market?

11. Depository Institutions Explain the primary use of funds by commercial banks versus savings institutions.

12. Credit Unions With regard to the profit motive, how are credit unions different from other financial institutions?

13. Nondepository Institutions Compare the main sources and uses of funds for finance companies, insurance companies, and pension funds.

14. Mutual Funds What is the function of a mutual fund? Why are mutual funds popular among investors? How does a money market mutual fund differ from a stock or bond mutual fund?

15. Secondary Market for Debt Securities. Why is it important for long-term debt securities to have an active secondary market?

Advanced Questions

16. Comparing Financial Institutions Classify the types of financial institutions mentioned in this chapter as either depository or nondepository. Explain the gen eral difference between depository and nondepository institutions as sources of funds. It is often said that all types of financial institutions have begun to offer services that were previously offered only by certain types. Consequently, the operations of many financial institutions are becoming more similar. Nevertheless, performance levels still differ significantly among types of financial institutions. Why?

17. Financial Intermediation Look in a business periodical for news about a recent financial transaction involving two financial institutions. For this transaction, determine the following:

a. How will each institution's balance sheet be affected?

b. Will either institution receive immediate income from the transaction?

c. Who is the ultimate user of funds?

d. Who is the ultimate source of funds?

18. Role of Accounting in Financial Markets Integrate the roles of accounting, regulation, and financial market participation. That is, explain how financial market participants rely on accounting and why regulatory oversight of the accounting process is necessary.

19. Factors That Influence Liquidity Which factors influence a security's liquidity?

20. Impact of Credit Crisis on Institutions Explain why mortgage defaults during the credit crisis in 2008 and 2009 adversely affected financial institutions that did not originate the mortgages. What role did these institutions play in financing the mortgages?

21. Impact of Fraudulent Financial Reporting on Market Liquidity Explain why financial markets may be less liquid if companies are not forced to provide accurate financial reports.

22. Impact of a Country's Laws on Its Market Liquidity Describe how a country's laws can influence the degree of its financial market liquidity.

23. Global Financial Market Regulations Assume that countries A and B are of similar size, that they have similar economies, and that the government debt levels of both countries are within reasonable limits. Assume that the regulations in country A require complete disclosure of financial reporting by issuers of debt in that country, whereas regulations in country B do not require much disclosure of financial report ing. Explain why the government of country A is able to issue debt at a lower cost than the government of country B.

24. Influence of Financial Markets Some countries do not have well-established markets for debt securities or equity securities. Why do you think this can limit the development of the country, business expansion, and growth in national income in these countries?

25. Impact of Systemic Risk Different types of financial institutions commonly interact. Specifi cally, they may provide loans to each other and take opposite positions on many different types of financial agreements, whereby one will owe the other based on a specific financial outcome. Explain why these kinds of relationships create concerns about systemic risk.

26. Uncertainty Surrounding Stock Price Assume that your publicly traded company

attempts to be completely transparent about its financial condition, and provides thorough information about its debt, sales, and earnings every quarter. Explain why there still may be much uncertainty surrounding your company's stock price.

27. Financial Institutions' Roles as Intermediaries Explain how each type of financial institution serves as a financial intermediary.

28. Systemic Risk During a Financial Crisis Explain why financial institutions are highly exposed to systemic risk during a financial crisis.

Critical Thinking Question

Impact of Financial Crisis on Market Liquidity

During a financial crisis, liquidity in financial markets declines dramatically, and many surplus units no longer participate in financial markets. Yet, if the markets are efficient, securi ties prices should decline due to existing economic conditions, which should make these securities appealing to potential investors. Nevertheless, many investors typically are no longer willing to participate in the financial markets under these conditions. Write a short essay that explains the logic behind why participants may temporarily dis appear during a financial crisis even though secu rity prices are low, causing illiquidity in financial markets.

Interpreting Financial News

"Interpreting Financial News" tests your ability to comprehend common statements made by Wall Street analysts and portfolio managers who partici pate in the financial markets. Interpret the following statements.

a. "The price of Apple stock will not be affected by the announcement that its earnings have increased as expected."
b. "The lending operations at Bank of America should benefit from strong economic growth." **c.** "The brokerage and underwriting performance at Goldman Sachs should benefit from strong economic growth."

Managing in Financial Markets Utilizing Financial Markets

As a financial man ager of a large firm, you plan to borrow $70 million over the next year.

a. What are the most likely ways in which you can borrow $70 million?
b. Assuming that you decide to issue debt securities, describe the types of financial institutions that may purchase these securities. **c.** How do individuals indirectly provide the financ ing for your firm when they maintain deposits at depository institutions, invest in mutual funds, pur chase insurance policies, or invest in pensions?

Flow of Funds Exercise

Roles of Financial Markets and Institutions

This continuing exercise focuses on the interactions of a single manufacturing firm (Carson Company) in the financial markets. It illustrates how financial markets and institutions are integrated and facilitate the flow of funds in the business and financial environment. At the end of every chapter, this exercise provides a list of ques tions about Carson Company that requires the applica tion of concepts presented in the chapter as they relate to the flow of funds.

Carson Company is a large manufacturing firm in California that was created 20 years ago by the Carson family. It was initially financed with an equity investment by the Carson family and 10 other individuals. Over time, Carson Company obtained substantial loans from finance companies and commercial banks. The interest rates on those loans are tied to market interest rates and are adjusted every six months. Thus, Carson's cost of obtain ing funds is sensitive to interest rate movements.

The company has a credit line with a bank in case it suddenly needs additional funds for a temporary period. It has purchased Treasury securities that it could sell if it experiences any liquidity problems.

Carson Company has assets valued at approximately $50 million and generates sales of nearly $100 million per year. Some of its growth is attributed to its acquisitions of other firms. Because it expects the U.S. economy to be strong in the future, Carson plans to grow by expanding its business and by making more acquisitions. It expects that it will need substantial long-term financing and plans to borrow additional funds either through obtaining loans or by issuing bonds. It is also considering issuing stock to raise funds in the next year. Carson closely monitors conditions in financial markets that could affect its cash inflows and cash outflows and thereby affect its value.

a. In what way is Carson a surplus unit? **b.** In what way is Carson a deficit unit?
c. How might finance companies facilitate Carson's expansion?
d. How might commercial banks facilitate Carson's expansion?
e. Why might Carson have limited access to addi tional debt financing during its growth phase? **f.** How might securities firms facilitate Carson's expansion?
g. How might Carson use the primary market to facilitate its expansion?
h. How might it use the secondary market? **i.** If financial markets were perfect, how might this factor have allowed Carson to avoid financial institutions?
j. The loans that Carson has obtained from com mercial banks stipulate that Carson must receive the bank's approval before pursuing any large projects. What is the purpose of this condition? Does this con dition benefit the owners of the company?

Internet/Excel Exercises

1. Review the information for the common stock of IBM, using the website finance.yahoo.com. Search for the ticker symbol "IBM." The main goal at this point is to become familiar with the information that you can obtain at this website. Review the data shown for IBM stock. Compare the price of IBM stock based on its last trade with the price range for the year. Is the price near its high or low price? What is the total value of IBM stock (Market Cap)? What is the average daily

trading volume (Avg Volume) of IBM stock? Click on “5Y”just above the stock price chart to see IBM’s stock price movements over the last five years. Describe the trend in IBM’s stock over this period. At what points were the stock price the highest and lowest?

2. Repeat the questions in exercise 1 for the Chil dren’s Place, Inc. (ticker symbol “PLCE”). Explain how the market capitalization and trading volume for PLCE differ from those for IBM.

WSJ Exercise

Differentiating between Primary and Secondary Markets

Review the different tables relating to stock markets and bond markets that appear in the **Wall Street Journal.** Explain whether each of these tables is focused on the primary or secondary markets.

Online Articles with Real-World Examples

Find a recent practical article online that describes a real-world example regarding a specific financial insti tution or financial market that reinforces one or more concepts covered in this chapter.

If your class has an online component, your profes sor may ask you to post your summary of the article there and provide a link to the article so that other stu dents can access it. If your class is live, your professor may ask you to summarize your application of the arti cle in class. Your professor may assign specific students to complete this assignment or may allow any students to do the assignment on a volunteer basis.

For recent online articles and real-world examples related to this chapter, consider using the following search terms (be sure to include the prevailing year as a search term to ensure that the online articles are recent):

1. secondary market AND liquidity

2. secondary market AND offering

3. money market

4. bond offering

5. stock offering
6. valuation AND stock
7. market efficiency
8. financial AND regulation
9. financial institution AND operations **10.** financial institution AND governance

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Chapter

Objectives

The specific objectives of this chapter are to:

- Apply the loanable funds theory to explain why interest rates change.
- Identify the most relevant factors that affect interest rate movements.
- Explain how to forecast interest rates.

Web

www.bloomberg.com Information on interest rates in recent months.

An interest rate reflects the rate of return that a creditor receives when lending money, or the rate that a borrower pays when borrowing money. Because interest rates change over time, so does the rate earned by the creditors who provide loans and the rate paid by the
borrowers who obtain loans. Interest rate movements have a direct influence on the market values of debt securities, such as money market securities, bonds, and mortgages. They also have an indirect influence on equity security values because they can affect economic conditions, and therefore influence the cash inflows to corporations. Since interest rates represent the cost of borrowing, they directly affect corporate cash outflow payments on debt.

Interest rate movements also affect the value of most financial institutions. They influence the cost of funds to depository institutions and the inter est received on some loans by financial institutions. Since financial institu tions commonly invest in securities, the market value of their investment portfolios is affected by interest rate movements. Managers of financial institutions attempt to anticipate interest rate movements and commonly restructure their assets and liabilities to capitalize on their expectations. Individuals also attempt to anticipate interest rate movements so that they can estimate the potential cost of borrowing or the potential return from investing in various debt

securities.

2-1 Loanable Funds Theory

The **loanable funds theory**, commonly used to explain interest rate movements, suggests that the market interest rate is determined by factors controlling the supply of and demand for loanable funds. This theory is especially useful for explaining movements in the gen eral level of interest rates for a particular country. Furthermore, it can be used (along with other concepts) to explain why interest rates for some debt securities of a given country vary, which is the focus of the next chapter. The phrase “demand for loanable funds” is widely used in financial markets to refer to the collective borrowing activities of house holds, businesses, and governments. This chapter describes the sectors that commonly affect the demand for loanable funds and then describes the sectors that supply loanable funds to the markets. Finally, the demand and supply concepts are integrated to explain interest rate movements.

D_h

Quantity of Loanable Funds

2-1a Household Demand for Loanable Funds

Households commonly demand loanable funds to finance their housing expenditures. In addition, they finance the purchases of automobiles and household items, which results in installment debt. As the aggregate level of household income rises, so does installment debt, because households are more comfortable financing expenses when their income is relatively high. The level of installment debt as a percentage of disposable income has been increasing over time, although it is generally lower in recessionary periods.

An inverse relationship exists between the interest rate and the quantity of loanable funds demanded by households. At any moment in time, households (in aggregate) demand a greater quantity of loanable funds at lower rates of interest; in other words, they are willing to borrow more money at lower interest rates.

Web

Exhibit 2.1 Relationship between Interest Rates and Household Demand ( ) D_h for Loanable Funds at a Given Point in Time

Interest Rate

Example Consider the household demand-for-loanable-funds schedule (also called the **demand curve**) in Exhibit 2.1, which shows how the amount of funds that would be demanded depends on the interest rate at a given point in time. Various events can cause household borrowing preferences to change over time, thereby shifting the demand curve. For example, if tax rates on household income are expected to decrease significantly in the future, households might believe that they can more easily afford future loan repayments and thus be willing to borrow more funds. Under this scenario, the quantity of loanable funds demanded by households at any particular interest rate would be greater as a result of the tax rate change. This represents an outward shift (to the right) in the demand curve. ●

interest rates are lower, as illustrated in Exhibit 2.2.

www.treasurydirect.gov Information on the U.S. government's debt.

2-1b Business Demand for Loanable Funds

Businesses need funds to invest in long-term assets. Business investment in new projects should be greater when interest rates are low, as the cost of financing potential projects should be low. Consequently, businesses will demand a greater quantity of loanable funds at a given point in time if

2-1c Government Demand for Loanable Funds

Whenever a government's planned expenditures cannot be completely covered by its incoming revenues from taxes and other sources, it demands loanable funds. Municipal (state and local) governments issue municipal bonds to obtain these kinds of funds; the

Exhibit 2.2 Relationship between Interest Rates and Business Demand ( ) D_b for Loanable Funds at a Given Point in Time

Interest Rat[e]

D_b

Quantity of Loanable Funds

federal government and its agencies issue Treasury securities and federal agency securities. These securities constitute government debt.

The federal government's expenditure and tax policies are generally thought to be independent of interest rates. Thus, the federal government's demand for funds is **interest-inelastic**, or insensitive to interest rates. In contrast, municipal governments sometimes postpone proposed expenditures if the cost of financing is too high, implying that their demand for loanable funds is somewhat sensitive to interest rates.

Like household and business demand, government demand for loanable funds can shift in response to various events.

Example The federal government's demand-for-loanable-funds schedule is represented by $_1D_g$ in Exhibit 2.3. If new laws are passed that cause a net increase of $200 billion in the deficit, the federal government's demand for loanable funds will increase by that amount. In the graph, this new demand schedule is represented by $_2D_g$. ●

Exhibit 2.3 Impact of Increased Government Deficit on the Government Demand for Loanable Funds

Interest Rat^e

D_{g1} D_{g2}

Quantity of Loanable Funds

Web

www.bloomberg.com /markets
Click on Rates & Bonds for interest rate information for various countries.

2-1d Foreign Demand for Loanable Funds

The demand for loanable funds in a given market also includes foreign demand by foreign governments or corporations. For example, the British government may obtain financing by issuing British Treasury securities to U.S. investors; this represents British demand for U.S. funds. Because foreign financial transactions are becoming so common, they can have a significant impact on the demand for loanable funds in any given country. A foreign country's demand for U.S. funds (i.e., the country's preference to borrow U.S. dollars) is influenced by, among other factors, the difference between its own interest rates and U.S. rates. Other things being equal, a larger quantity of U.S. funds will be demanded by foreign governments and corporations if their domestic interest rates are high relative to U.S. rates. As a result, for a given set of foreign interest rates, the quantity of U.S. loanable funds demanded by foreign governments or firms will be inversely related to U.S. interest rates. The foreign demand curve can shift in response to economic conditions. For example, assume the original foreign demand schedule is represented by D_{f1} in Exhibit 2.4. If foreign interest rates rise, foreign firms and governments will likely increase their demand for U.S. funds, as represented by the shift from D_{f1} to D_{f2}.

2-1e Aggregate Demand for Loanable Funds

The aggregate demand for loanable funds is the sum of the quantities demanded by the separate sectors at any given interest rate, as shown in Exhibit 2.5. Because most of these sectors are likely to demand a larger quantity of funds at lower interest rates (other things being equal), it follows that the aggregate demand for loanable funds is inversely related to the prevailing interest rate. If the demand schedule of any sector changes, the aggregate demand schedule will also be affected.

2-1f Supply of Loanable Funds

The term "supply of loanable funds" is commonly used to refer to funds provided to finan cial markets by savers. The household sector is the largest supplier of such funds, but loan able funds are also supplied by some government units that temporarily generate more tax revenues than they spend or by some businesses whose cash inflows exceed outflows during a particular period. Although households as a group are a net supplier of loanable funds, governments and businesses are net demanders of loanable funds.

Exhibit 2.4 Impact of Increased Foreign Interest Rates on the Foreign Demand for U.S. Loanable Funds

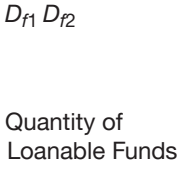


Exhibit 2.5 Determination of the Aggregate Demand Curve for Loanable Funds

Household
Demand D_h D_b

Business Demand

Interest Rate Federal
Government Demand

D_g
Aggregate
Demand

Quantity of
Loanable Funds Municipal
Government
Demand

D_m

D_A

Foreign Demand

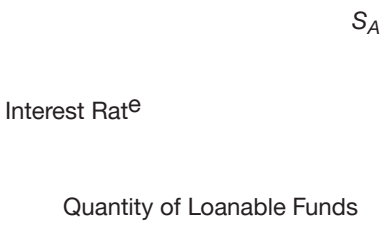
D_f

Suppliers of loanable funds are willing to supply more funds at a given point in time if the interest rate (the reward for supplying funds) is higher, other things being equal. This means that the supply-of-loanable-funds schedule (also called the supply curve) is upward sloping, as shown in Exhibit 2.6. A supply of loanable funds exists at even a very low interest rate because some households choose to postpone consumption until later years, even when the reward (interest rate) for saving is low. Foreign households, governments, and businesses commonly supply funds to their domestic markets by purchasing domestic securities. In addition, they have been major suppliers of funds to the U.S. government by purchasing large amounts of Treasury securities. The large foreign supply of funds to the U.S. market is due in part to the high saving rates of foreign households.

Effects of the Fed The supply of loanable funds in the United States is also influenced by the monetary policy implemented by the Federal Reserve System. The Fed conducts monetary policy in an effort to

control U.S. economic conditions. By affecting the supply of loanable funds, the Fed's monetary policy affects interest rates (as will be described shortly). In turn, by influencing interest rates, the Fed is able to influence the amount of money that corporations and households are willing to borrow and spend.

Exhibit 2.6 Aggregate Supply Curve for Loanable Funds



Aggregate Suppl of Funds The aggregate supply schedule of loanable funds represents the combination of all sector supply schedules along with the supply of funds provided by the Fed's monetary policy. The steep slope of the aggregate supply curve in Exhibit 2.6 means that it is interest-inelastic. The quantity of loanable funds demanded is normally expected to be more elastic (more sensitive to interest rates) —than the quantity of loanable funds supplied.

The supply curve can shift inward or outward in response to various conditions. For example, if the tax rate on interest income decreases, the supply curve will shift outward as households save more funds at each possible interest rate level. Conversely, if the tax rate on interest income increases, the supply curve will shift inward as households save fewer funds at each possible interest rate level.

In this section, minimal attention has been given to financial institutions. Although financial institutions play a critical intermediary role in channeling funds, they are not the ultimate suppliers of funds. Any change in a financial institution's supply of funds results only from a change in habits of the households, businesses, or governments that supply those funds.

2-1g Equilibrium Interest Rate

An understanding of equilibrium interest rates is necessary to assess how various events can affect interest rates. In reality, several different interest rates are present at a given point in time because some borrowers pay a higher rate than others. At this point, however, our focus is on the forces that cause the general level of interest rates to change, because interest rates across borrowers tend to change in the same direction. The determination of an equilibrium interest rate is presented first from an algebraic perspective and then from a graphical perspective. Following this presentation, several examples are offered to reinforce the concept.

Algebraic Presentation The equilibrium interest rate is the rate that equates the aggregate demand for funds (aggregate quantity of funds demanded) with the aggregate supply of loanable funds. The aggregate demand for funds ( ) D_A can

be written as

$$D = D_h + D_b + D_g + D_m + D_f$$

where

D_h = household demand for loanable funds
D_b = business demand for loanable funds
D_g = federal government demand for loanable funds
D_m = municipal government demand for loanable funds
D_f = foreign demand for loanable funds

The aggregate supply of funds ( ) S_a can likewise be written as $S = S_h + S_b + S_g + S_m + S_f$

where

S_h = household supply of loanable funds
S_b = business supply of loanable funds
S_g = federal government supply of loanable funds
S_m = municipal government supply of loanable funds
S_f = foreign supply of loanable funds

If interest rates were extremely low at a given point in time, D_a would likely exceed S_a because the low interest rate would be appealing to borrowers, but not to savers. Conversely, if interest rates were very high at a given point in time, D_a would likely be less than S_a because the high interest rate would be appealing to savers, but not to borrowers. At any given point in time, there should be an interest rate level that is equally appealing to borrowers and savers in aggregate. At that interest rate, an equilibrium occurs because D

S_A5 . As time passes, conditions can change that will affect either $D_A$or S_A, thereby disrupting the equilibrium.

Example Assume that recent conditions have increased the desire by various sectors to borrow, resulting in a larger D_A. When the aggregate demand for loanable funds increases without a corresponding increase in aggregate

supply, the equilibrium situation has been disrupted because $D_A$now exceeds S_A. At the previous equilibrium interest rate, there will be a shortage of loanable funds. Consequently, interest rates will rise, causing savers to provide an additional supply of loanable funds. Interest rates will continue to rise until savers have supplied sufficient funds to accommodate the excess demand, creating a new equilibrium. ●

An equilibrium situation could also be disrupted by a change in condition that alters the quantity of funds supplied.

Example Assume an initial equilibrium situation is disrupted because recent conditions have increased the desire by various sectors to supply loanable funds. At the previous equilibrium interest rate, there will be an excess sup
ply of loanable funds. Consequently, interest rates will decline until the quantity of loanable funds demanded has risen to a level that offsets the increased supply of loanable funds. A new equilibrium situation will be established at this point. ●

In many cases, both supply and demand for loanable funds are changing. Given an initial equilibrium situation, the equilibrium interest rate should rise when DS_A. and fall when DS_A, .

Exhibit 2.7 Interest Rate Equilibrium

Graphical Presentation By combining the aggregate demand and aggregate supply curves of loanable funds (refer to Exhibits 2.5 and 2.6), it is possible to compare the total amount of funds that would be demanded to the total amount of

funds that would be supplied at any particular interest rate. Exhibit 2.7 illustrates the combined demand and supply schedules. At the equilibrium interest rate of i_1, the supply of loanable funds is equal to the demand for loanable funds.

At any interest rate greater than i_1, there is a surplus of loanable funds. Some potential suppliers of funds will be unable to successfully supply their funds at the prevailing interest rate. Once the market interest rate decreases to i_1, however, the quantity of funds supplied is sufficiently reduced and the quantity of funds demanded is sufficiently increased so that there is no longer a surplus of funds. When a disequilibrium situation exists, market forces should cause an adjustment in interest rates until equilibrium is achieved.

If the prevailing interest rate is less than i_1, there will be a shortage of loanable funds; borrowers will not be able to obtain all the funds that they desire at that rate. The short age of funds will cause the interest rate to increase, resulting in two reactions. First, more savers will enter the market to supply loanable funds because the reward (interest rate) is now higher. Second, some potential borrowers will decide not to demand loan able funds at the higher interest rate. Once the interest rate rises to i_1, the quantity of loanable funds supplied has increased and the quantity of loanable funds demanded has decreased to the extent that a shortage no longer exists. Thus, an equilibrium position is achieved once again.

2-2 Factors That Affect Interest Rates

A number of underlying economic forces can cause a change in either the supply of or the demand for loanable funds. The following economic factors influence this supply and demand, thereby influencing interest rates.

2-2a Impact of Economic Growth on Interest Rates

Changes in economic conditions cause a shift in the demand curve for loanable funds, which affects the equilibrium interest rate.

Example When economic conditions become more favorable, businesses' expected cash flows for their proposed projects will increase. More of these projects will then have expected returns that exceed a business's particular required rate of return (the **hurdle rate**). As additional projects become acceptable as a result of the more favorable economic forecasts, demand for loanable funds will increase, causing an outward shift (to the right) in the demand curve.

The improvement in economic conditions may also affect the supply-of-loanable-funds schedule, but it is difficult to know in which direction it will shift. If the increased expansion by businesses leads to more income for construction crews and other workers, the quantity of savings (loanable funds supplied) could increase regardless of the interest rate, causing an outward shift in the supply schedule. Conversely, the increased income may be used for consumption rather than savings. Thus, there is no assurance that the volume of savings will actually increase. Even if such a shift in the supply-of-loanable-funds schedule does occur, it will likely be of smaller magnitude than the shift in the demand schedule.

Overall, the expected impact of the increased expansion by businesses is an outward shift in the demand curve but no obvious change in the supply schedule. In Exhibit 2.8, notice that the shift in the aggregate demand curve to $_2D_a$ causes an increase in the equilibrium interest rate to $_2i_1$. ●

Just as economic growth puts upward pressure on interest rates, an economic slowdown puts downward pressure on the equilibrium interest rate.

Example A slowdown in the economy will cause the demand curve to shift inward (to the left), reflecting less demand for loanable funds at any given interest rate. The supply curve may shift a little, but the direction of that shift is uncertain. Although some households may try to increase their savings to prepare for possible layoffs, the economic slowdown could reduce other households' ability to save. In either case, any shift that does occur is likely to be minor relative to the shift in demand. The equilibrium interest rate is therefore expected to decrease, as illustrated in Exhibit 2.9. ●

2-2b Impact of Inflation on Interest Rates

Changes in inflationary expectations can affect interest rates by altering the amount of spending by households or businesses. Decisions to spend affect both the amount saved (supply of funds) and the amount borrowed (demand for funds).

Example Assume the U.S. inflation rate is expected to increase. In this scenario, households that supply funds may reduce their savings at any interest rate level so that they can make more purchases now before prices rise. This shift in behavior is reflected by an inward shift (to the left) in the supply curve of loanable funds. In addi tion, households and businesses may be willing to borrow more funds at any interest rate level so that they can purchase products now before prices increase. This is reflected by an outward shift (to the right) in the demand curve for loanable funds. These shifts are illustrated in Exhibit 2.10. The new equilibrium interest rate is higher because of these shifts in saving and borrowing behavior. ●

Exhibit 2.8 Impact of Increased Expansion by Firms

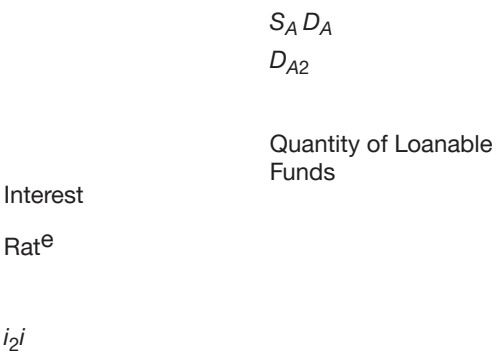
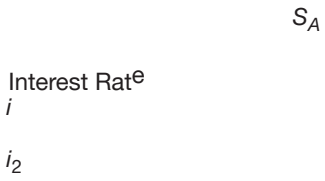


Exhibit 2.9 Impact of an Economic Slowdown



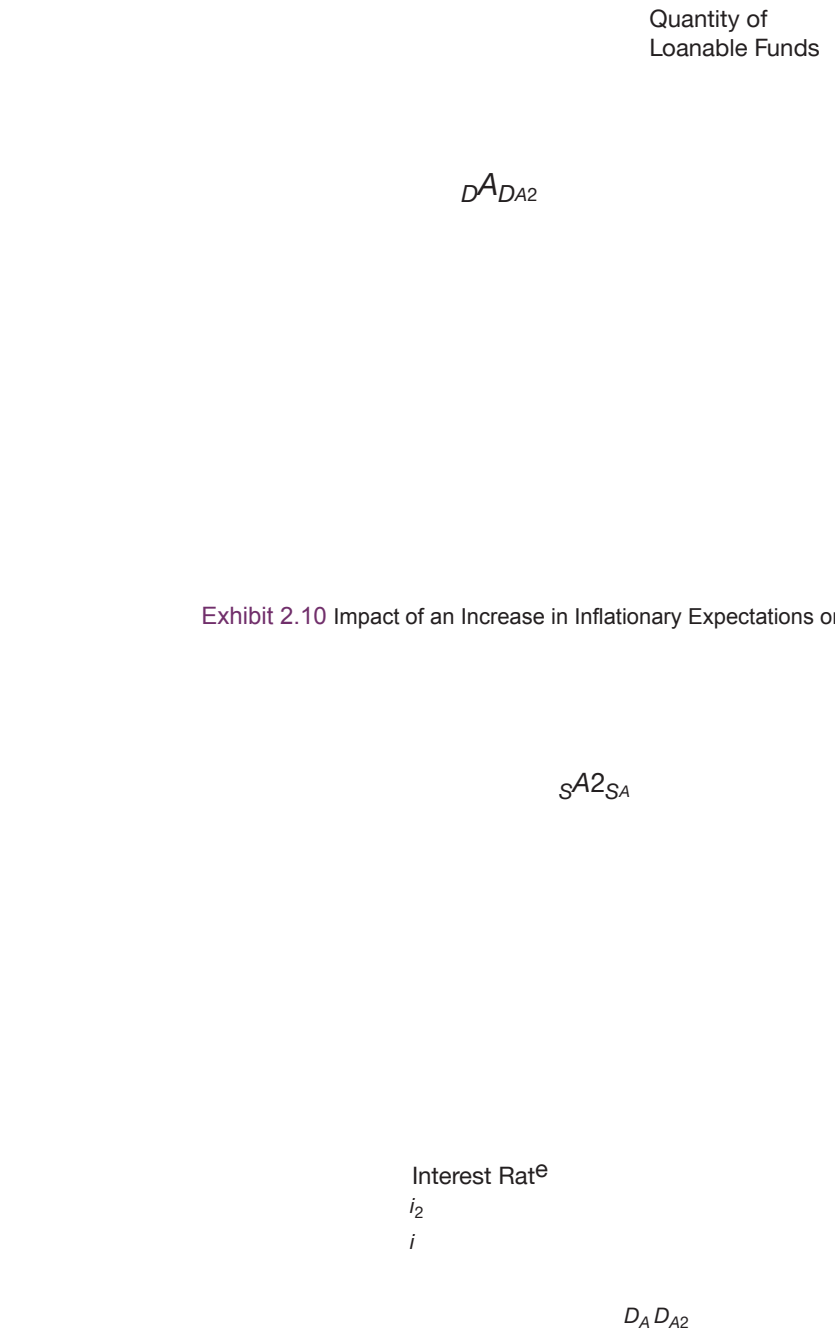


Exhibit 2.10 Impact of an Increase in Inflationary Expectations on Interest Rates

Fisher Eect More than 70 years ago, Irving Fisher proposed a theory of interest rate determination that is still widely used today. Fisher's theory does not contradict the loanable funds theory, but simply offers an additional explanation for

interest rate movements. Fisher proposed that the nominal interest rate (the interest rate quoted by a financial institution) on savings must be sufficient to compensate savers in two ways. First, it must compensate for a saver's reduced purchasing power because of anticipated inflation over the period in which funds are saved. Second, it must provide an additional premium to savers for forgoing present consumption. Thus, the nominal interest rate is composed of these two factors:

$$i = E(\text{INF}) + i_R$$

where

i = nominal rate of interest

$E(\text{INF})$ = expected inflation rate

i_R = real rate

$$i - E(\text{INF}) = i_R$$

To the extent that the real rate of interest is very stable over time, the Fisher effect suggests that the nominal interest rate should rise in response to an increase in expected inflation.

Throughout this text, the term "interest rate" will be used to represent the **nominal**, or **quoted**, rate of interest. Keep in mind, however, that because of the Fisher effect, high interest rates will not necessarily result in a higher real rate of interest.

Web
real intere
www.federalreserve .gov/monetarypolicy /fomc.htm Information on how the Fed controls the money supply.

This relationship between interest rates and expected inflation is often referred to as the Fisher effect. The difference between the nominal interest rate and the expected inflation rate is referred to as the **real interest rate** because it measures the rate of interest earned by a saver after adjusting for the expected loss in purchasing power (due to expected inflation) over the time period of concern. The preceding equation can be rearranged to express the real interest rate as

2-2c Impact of Monetary Policy on Interest Rates

The Federal Reserve can affect the supply of loanable funds by increasing or reducing the total amount of deposits held at commercial banks or other depository institutions.

The process by which the Fed adjusts the money supply is described in Chapter 4. When the Fed revises the money supply, it revises the supply of loanable funds, which affects interest rates.

Example When economic conditions are weak, the Fed may believe that it can stimulate the economy by reducing interest rates, which may encourage businesses and households to borrow more funds (at the appealing lower interest rate). To do so, the Fed increases the money supply in the banking system. The increase in the supply of loanable funds (represented as an outward shift in the supply curve) places downward pressure on interest rates. ●

To reduce the money supply, the Fed reduces the supply of loanable funds in the banking system. Assuming no change in demand, this action places upward pressure on interest rates.

Example Exhibit 2.11 plots U.S. interest rates over recent decades and illustrates how they have been affected by the forces of monetary policy. During the period 2005–2007, U.S. economic growth increased and interest rates rose.

However, when the credit crisis that began in 2008 caused the economy to weaken substantially, the Fed responded by substantially increasing the supply of loanable funds in the banking system over the next several years. Consequently, U.S. interest rates declined to extremely low levels, which the Fed hoped would encourage businesses and households to borrow and spend more money. Ultimately, the Fed's strategy helped to stimulate the U.S. economy. ●

2-2d Impact of the Budget Deficit on Interest Rates

When the federal government enacts fiscal policies that result in more expenditures made than tax revenues collected, the budget deficit is increased. Because of large budget deficits in recent years, the U.S. government has been a major participant in the demand for loan able funds. A higher federal government deficit increases the quantity of loanable funds

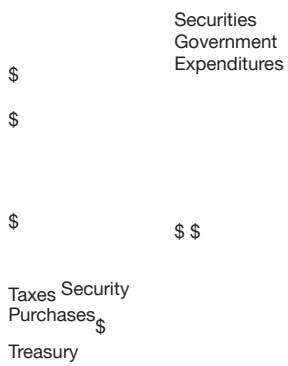
Exhibit 2.11 U.S. Interest Rates Over Time

2004 2006 2008 2010 2012 2014 2016 2018 Shaded areas indicate U.S. recessions.

Note: Rate shown is for Treasury billswith a one-year maturity. The shaded area represents a recession period. Source: Board of Governors of the Federal Reserve.

demanded at any prevailing interest rate, which represents an outward shift in the demand curve. Assuming that all other factors are held constant, interest rates will rise in such a scenario. Given a finite amount of loanable funds supplied to the market (through savings), excessive government demand for these funds tends to "crowd out" the private demand (by consumers and corporations) for funds. The federal government may be willing to pay whatever is necessary to borrow these funds, but the private sector may not. This impact is known as the **crowding-out effect**. Exhibit 2.12 illustrates the flow of funds between the federal government and the private sector.

Exhibit 2.12 Flow of Funds between the Federal Government and the Private Sector



2-2e Impact of Foreign Flows of Funds on Interest Rates

Since a currency's interest rate depends on the demand for and the supply of loanable funds in that currency, the interest rate of one currency typically differs from the interest rates of other

currencies.

Web

Example The supply and demand curves for the U.S. dollar and for Brazil's currency (which is called the Brazilian **real**) are compared for a given point in time in Exhibit

An increase in the budget deficit might also cause the supply curve to shift a little, but the direction of that shift is uncertain. Much research has been conducted on this issue and has generally shown that, when holding other factors constant, higher budget deficits place upward pressure on interest rates.

be downward sloping for every currency and the supply schedule should be upward sloping, the actual posi tions of these curves vary among currencies. Notice that the

2.13. Although the demand curve for loanable funds should demand and supply curves are farther to the right for the dollar than for the Brazilian real. The amount of U.S. dollar–denominated loanable funds supplied and demanded is much greater than the amount of Brazilian real–denominated loanable funds because the

http://fred.stlouisfed.org Time series of various interest rates provided by the Federal Reserve Economic Databank.

Web

http://fred.stlouisfed.org Current interest rates and trends of historical interest rates for various debt securities. U.S. economy is much larger than Brazil's economy. Observe also that the positions of the demand and supply curves for loanable funds are much higher for the Brazilian real than for the dollar. The supply schedule for loanable funds denominated in Brazilian real shows that hardly any amount of savings would be supplied when interest rate levels are low, because the relatively high inflation rate in

Demand and Supply of
Funds Denominated in U.S. $

$S_{\$}$

Interest Rate for Rea[l]

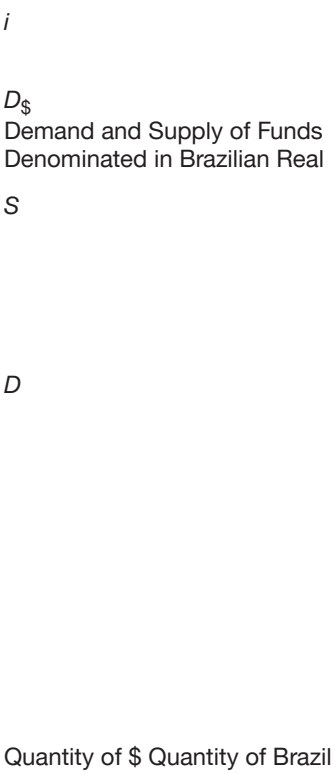
Interest Rate for $

i

Brazil encourages households to spend more of their disposable income before prices increase. In essence, this factor discourages households from saving unless the interest rate is sufficiently high. In addition, the demand for loanable funds denominated in Brazilian real shows that borrow ers are willing to borrow even at relatively high rates of interest because they want to make purchases now before prices increase. Brazilian businesses may be willing to pay 15 percent interest on a loan to purchase machines whose prices may increase 20 percent by the following year.

Because of the different positions of the demand and supply curves for the two currencies shown in Exhibit 2.13, the equilibrium interest rate is much higher for the Brazilian real than for the dollar. As the demand and supply schedules change over time for a specific currency, so will the equilibrium interest rate of that currency. ●

Exhibit 2.13 Demand and Supply Curves for Loanable Funds Denominated in U.S. Dollars and Brazilian Real



2-3 Forecasting Interest Rates

Exhibit 2.14 summarizes the key factors that are evaluated when forecasting interest rates. With an understanding of how each factor affects interest rates, it becomes possible to forecast how interest rates may change in the future. When forecasting household demand for loanable funds, it may be necessary to assess consumer credit data to determine the borrowing capacity of households. The potential supply of loanable funds provided by households may be determined in a similar manner by assessing factors that affect the earning power of households.

Business demand for loanable funds can be forecasted b assessin future plans for corporate expansion and the future state of the economy. Federal government demand for loanable funds could be influenced by the economy's future state because it affects both the tax revenues to be received and the amount of unemployment compensation to be paid out—factors that affect the size of the government deficit. The Federal Reserve System's money supply targets may be assessed by reviewing public statements about the Fed's future objectives, although those statements tend to be rather vague.

To forecast future interest rates, the net demand for funds ( ) should be forecast:

$ND\ D\ S\ (\ )\ DDD\ D\ D\ (\ )\ SSS\ S\ S\ 5\ 2_{A\ A}\ 5\ 1_{hbg}\ 1\ 1\ _{m\ f}\ 1\ 2\ _{hbg}\ 1\ 1\ 1\ 1_{m\ f}$

If the forecasted level of ND is positive or negative, then a disequilibrium will exist temporarily. If ND is positive, the disequilibrium will be corrected by an upward adjust ment in interest rates; if ND is negative, the disequilibrium will be corrected by a down ward adjustment. The larger the forecasted magnitude of ND, the larger the
adjustment in interest rates will be.

Some analysts focus more on changes in D_n and S_n than on estimating their aggregate levels. For example, assume that today the equilibrium interest rate is 7 percent. This inter est rate will change only if D_n and S_n change to create a temporary disequilibrium. If the government demand for funds ( ) D_g is expected to increase substantially and if no other components are expected to change, D_n will exceed S_n, placing upward pressure on interest rates. In such a case, the forecast of future interest rates can be derived without estimating every component of D_n and S_n.

Exhibit 2.14 Framework for Forecasting Interest Rates

Summary

- The loanable funds framework shows how the equi librium interest rate depends on the aggregate sup ply of available funds and the aggregate demand for funds. As conditions cause the aggregate supply or demand schedules to change, interest rates gravitate toward a new equilibrium.
- Factors that affect interest rate movements include changes in economic growth, inflation, the bud get deficit, foreign interest rates, and the money supply. These factors can have a strong impact on the aggregate supply of funds and/or the aggre gate demand for funds, thereby affecting the equilibrium interest rate. In particular, economic growth has a strong influence on the demand for loanable funds, and changes in the money sup ply have a strong impact on the supply of loanable funds.
- Given that the equilibrium interest rate is deter mined by supply and demand conditions, changes in the interest rate can be forecasted by forecasting changes in the supply of and the demand for loanable funds. Thus, the factors that influence the supply of funds and the demand for funds must be forecast to anticipate changes in interest rates.

Point/Counterpoint

Does a Large Fiscal Budget Deficit Result in Higher Interest Rates?

Point No. In some years (such as 2014), the fiscal budget deficit was large but interest rates were very low. Counterpoint Yes. When the federal government borrows large amounts of funds, it can crowd out

Questions and Applications

1. Interest Rate Movements Explain why

interest rates changed as they did over the past year.

2. Interest Elasticity Explain what is meant by interest elasticity. Would you expect the federal government's demand for loanable funds to be more or less interest elastic than household demand for loanable funds? Why?

3. Impact of Government Spending If the federal government planned to expand the space program, how might this change affect interest rates?

4. Impact of a Recession Explain why interest rates tend to decrease during recessionary periods. Review historical interest rates to determine how they reacted to recessionary periods. Explain this reaction.

5. Impact of the Economy Explain how the expected interest rate in one year depends on your expectation of economic growth and inflation.

6. Impact of the Money Supply Would increasing the money supply growth place upward or downward pressure on interest rates?

7. Impact of Exchange Rates on Interest Rates Assume that if the U.S. dollar strengthens, it can place downward pressure on U.S. inflation. Based on this information, how might other potential borrowers, and the interest rates are bid up by the deficit units.

Who Is Correct? Use the Internet to learn more about this issue and then formulate your own opinion.

expectations of a strong dollar affect the demand for loanable funds in the United States and U.S. interest rates? Is there any reason to think that expectations of a strong dollar could also affect the supply of loanable funds? Explain.

8. Nominal versus Real Interest Rate What is the difference between the nominal interest rate and the real interest rate? What is the logic behind the implied positive relationship between expected inflation and nominal interest rates?

9. Real Interest Rate Estimate the real interest rate over the last year. If financial market participants overestimate inflation in a particular period, will real interest rates be relatively high or low? Explain.

10. Forecasting Interest Rates Why do forecasts of interest rates made by experts differ?

Advanced Questions

11. Impact of Stock Market Crises During periods when investors suddenly become fearful that stocks are overvalued, they dump their stocks and the stock market experiences a major decline. During these periods, interest rates also tend to decline. Use the loanable funds framework discussed in this chapter to explain how a massive sell-off of stocks leads to lower interest rates.

12. Impact of Expected Inflation How might expec tations of higher prices in the United States affect the demand for loanable funds, the supply of loanable funds, and interest rates in the United States? Offer a logical explanation of why such an impact on interest rates in the United States might spread to other countries.

13. Global Interaction of Interest Rates Why might you expect the interest rate movements of various industrialized countries to be more highly correlated in recent years than they were in earlier years?

14. Impact of War War tends to cause significant

17. Decomposing Interest Rate Movements The interest rate on a one-year loan can be decomposed into a one-year, risk-free (free from

reactions in financial markets. Why might a war in the Middle East place upward pressure on U.S. interest rates? Why might some investors expect a war like this to place downward pressure on U.S. interest rates?

15. Impact of September 11 Offer an argument for why the terrorist attacks on the United States on September 11, 2001, could have placed downward pressure on U.S. interest rates. Offer an argument for why those attacks could have placed upward pressure on U.S. interest rates.

16. Impact of Government Spending Jayhawk Forecasting Services analyzed several factors that could affect interest rates in the future. Most factors were expected to place downward pressure on inter est rates. Jayhawk also expected that, although the annual budget deficit was to be cut by 40 percent from the previous year, the deficit would still be very large. Because Jayhawk believed that the deficit's impact would more than offset the effects of other factors, it forecast interest rates to increase by 2 percentage points. Comment on Jayhawk's logic. default risk) com ponent and a risk premium that reflects the potential for default on the loan in that year. A change in eco nomic conditions can affect the risk-free rate and the risk premium. The risk-free rate is usually affected by changing economic conditions to a greater degree than is the risk premium. Explain how a weaker economy will likely affect the risk-free component, the risk pre mium, and the overall cost of a one-year loan obtained by (a) the Treasury and (b) a corporation. Will the change in the cost of borrowing be more pronounced for the Treasury or for the corporation? Why?

18. Forecasting Interest Rates Based on Prevailing Conditions Consider the prevailing conditions for inflation (including oil prices), the economy, the bud get deficit, and the Fed's monetary policy that could affect interest rates. Based on these conditions, do you think interest rates will likely increase or decrease during this semester? Offer some logic to support your answer. Which factor do you think will have the great est impact on interest rates?

19. Impact of Economic Crises on Interest Rates When economic crises in countries are due to a weak economy, local interest rates tend to be very low. How ever, if the crisis is caused by an unusually high rate of inflation, the interest rate tends to be very high. Explain why.

20. U.S. Interest Rates during the Credit Crisis During the credit crisis of 2008 and 2009, U.S. interest rates were extremely low, which enabled businesses to borrow at a low cost. Holding other factors con stant, this should have resulted in a higher number of feasible projects, which should have encouraged busi nesses to borrow more money and expand. Yet many businesses that had access to loanable funds were unwilling to borrow during the credit crisis. What other factor changed during this period that more than offset the potentially favorable effect of the low interest rates on project feasibility, thereby discourag ing businesses from expanding?

21. Political Influence on Interest Rates Offer an argument for why a political regime that favors having a large government bureaucracy will cause interest rates to be higher. Offer at least one example of why a political regime that favors having a large government bureau cracy will cause interest rates to be lower. [**Hint:** Recog nize that the government intervention in the economy can influence other factors that affect interest rates.]

22. Impact of Stock Market Uncertainty Consider a period in which stock prices are very high, such that investors begin to think that stocks are overvalued and their valuations are very uncertain. If investors decide to move their money into much safer invest ments, how would this affect general interest rate lev els? In your answer, use the loanable funds framework to explain how the supply of or demand for loanable funds would be affected by the investor actions, and how this force would affect interest rates.

23. Impact of the European Economy Use the loan able funds framework to explain how European eco nomic conditions might affect U.S. interest rates.

Critical Thinking Question

Forecasting Interest Rates Given your knowl edge of how interest rates are influenced by various factors reflecting the demand for funds and the sup ply of funds available in the credit markets, write a
short essay to explain how and why interest rates will change over the next three months.

Interpreting Financial News

Interpret the following comments made by Wall Street analysts and portfolio managers.

a. "The flight of funds from bank deposits to U.S. stocks will pressure interest rates." **b.** "Since Japanese interest rates have recently declined to very low levels, expect a reduction in U.S. interest rates."
c. "The cost of borrowing by U.S. firms is dictated by the degree to which the federal government spends more than it taxes."

Managing in Financial Markets

Forecasting Interest Rates As the treasurer of a manufacturing company, your job is to forecast the direction of interest rates. Your company plans to bor row funds, and it may use the forecast of interest rates to determine whether it should obtain a loan with a fixed interest rate or a floating interest rate. The fol lowing information can be considered when assessing the future direction of interest rates.

1. Nominal Rate of Interest Suppose the real interest rate is 6 percent and the expected inflation rate is 2 percent. What would you expect the nominal rate of interest to be?

Flow of Funds Exercise

How the Flow of Funds Affects Interest Rates

Recall that Carson Company has obtained substantial loans from finance companies and commercial banks. The interest rate on the loans is tied to market interest rates and is adjusted every six months. Thus, Carson's cost of obtaining funds is sensitive to interest rate

- Economic growth has been high over the last two years, but you expect that it will be stagnant over the next year.
- Inflation has been 3 percent over each of the last few years, and you expect that it will be about the same over the next year.
- The federal government has announced major cuts in its spending, which should have a major impact on the budget deficit.
- The Federal Reserve is not expected to affect the existing supply of loanable funds over the next year.
- The overall level of savings by households is not expected to change.

a. Given the preceding information, assess how the demand for and the supply of loanable funds would be affected, if at all, and predict the future direction of interest rates.
b. Your company can obtain a one-year loan at a fixed rate of 8 percent or a floating-rate loan that is currently at 8 percent but for which the interest rate would be revised every month in accordance with general interest rate movements. Which type of loan is more appropriate based on the information
provided?
c. Assume that Canadian interest rates have abruptly risen just as you have completed your forecast of future U.S. interest rates.
Consequently, Canadian interest rates are now 2 percentage points above U.S. interest rates. How might this specific situation place pressure on U.S. interest rates? Considering this situa tion along with the other information provided, would you change your forecast of the future direction of U.S. interest rates?

2. Real Interest Rate Suppose that Treasury bills are currently paying 9 percent and the expected inflation rate is 3 percent. What is the real interest rate?

movements. Given its expectations that the U.S. econ omy will strengthen, Carson plans to grow in the future by expanding and by making acquisitions. Carson expects that it will need substantial long-term financing to pay for this growth, and it plans to borrow additional

funds either through existing loans or by issuing bonds. The company is also considering the possibility of issu ing stock to raise funds in the next year.

a. Explain why Carson should be very interested in future interest rate movements. **b.** Given Carson's expectations, do you think the company anticipates that interest rates will increase or decrease in the future? Explain.

Internet/Excel Exercises

1. Go to http://fred.stlouisfed.org/categories. Under "Money, Banking, & Finance," select "Interest Rates" and then select the three-month Treasury-bill series (secondary market). Describe how this rate has changed in recent months. Using the information in this chap ter, explain why the interest rate changed as it did.

2. Using the same website, retrieve data at the begin ning of the last 20 quarters for interest rates (based on the three-month Treasury-bill rate) and the producer price index for all commodities (under "Prices") and

Journal. Identify the factors that are given attention because they may affect future inter est rate movements. Then create your own forecasts as

WSJ Exercise

Forecasting Interest Rates

Review information about the credit markets in a recent issue of **TheWall Street**

c. If Carson's expectations of future interest rates are correct, how would this affect its cost of borrowing on its existing loans and on its future loans?

d. Explain why Carson's expectations about future interest rates may affect its decision about when to borrow funds and whether to obtain floating-rate or fixed-rate loans.

place the data in two columns of an Excel spreadsheet. Derive the change in interest rates on a quarterly basis. Then derive the percentage

change in the producer price index on a quarterly basis, which serves as a measure of inflation. Apply regression analysis in which the change in interest rates is the dependent variable and inflation is the independent variable (see Appendix B for infor mation about applying regression analysis). Explain the relationship that you find. Does it appear that inflation and interest rate movements are positively related?

to whether interest rates will increase or decrease from now until the end of the school term, based on your assessment of any factors that affect interest rates. Explain your forecast.

Online Articles with Real-World Examples

Find a recent practical article available online that describes a real-world example regarding a specific financial institution or financial market that reinforces one or more concepts covered in this chapter.

If your class has an online component, your profes sor may ask you to post your summary of the article there and provide a link to the article so that other stu dents can access it. If your class is live, your professor may ask you to summarize your application of the arti cle in class. Your professor may assign specific students to complete this assignment or may allow any students to do the assignment on a volunteer basis.

For recent online articles and real-world examples related to this chapter, consider using the following search terms (be sure to include the prevailing year as a search term to ensure that the online articles are recent):

1. budget deficit AND interest rate
2. flow of funds AND interest rate
3. Federal Reserve AND interest rate
4. economic growth AND interest rate
5. inflation AND interest rate
6. monetary policy AND interest rate
7. supply of savings AND interest rate
8. business expansion AND interest rate
9. demand for credit AND interest rate
10. interest rate AND forecast

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debt security.

- Explain the theories behind the term structure of interest rates (relationship between the term to maturity and the yield of securities).

Chapter Objectives

The specific objectives of this chapter are to:

- Describe how characteristics of debt securities cause their yields to vary.
- Demonstrate how to model the appropriate yield for any particular

The annual interest rate offered at any given whether the extra yield on a given security outweighs any unfavorable characteristics. Likewise, financial managers of corporations or government agencies in need of funds must understand why quoted yields of debt securities vary at a given point in time so that they can estimate the yield they would have to offer so as to sell new debt securities.

3-1 Why Debt Security Yields Vary

Debt securities offer different yields because they exhibit different characteristics that influence the yield to be offered. The yields on debt securities are affected by the following characteristics:

- Credit (default) risk
- Liquidity
- Tax status
- Term to maturity

The yields on bonds may also be affected by special provisions of those bonds, as described in Chapter 7.

In general, securities with unfavorable characteristics must offer higher yields to entice investors to buy them. Although the difference in yields may seem small, the impact on the issuer can be significant. If a company has to pay an extra 1 percent (100 basis points) on $30 million worth of bonds that it wants to issue, that extra percentage point reflects $300,000 in additional interest expenses per year.

time varies among debt securities. Individual and institutional investors must understand why quoted yields vary so that they can determine

3-1a Credit (Default) Risk

Because most securities are subject to the risk of default, investors must consider the credit worthiness of the security issuer. Although investors always have the option of purchasing risk-free Treasury securities, they may prefer other securities if the yield compensates them for the credit risk. Thus, if all other characteristics besides credit risk are equal, securities with a higher degree of credit risk must offer a credit risk premium (higher yield above the Treasury bond yield) if they are to attract investors.

the next 10 years. ●

Use of Ratings Agencies to Assess Credit Risk

Investors can personally assess the creditworthiness of corporations that issue bonds, but they may prefer to rely on bond ratings provided by rating agencies. These ratings are based on a financial assessment of the issuing corporation, with a focus on whether the corporation will receive sufficient cash flows over time to cover its payments to bondholders. The higher the rating on the bond, the lower the perceived credit risk is.

Web

Example Investors can purchase a Treasury bond with a 10-year maturity that presently offers an annualized yield of 7 percent if they hold the bond until maturity. Alternatively, investors can purchase bonds that are being issued by Zanstell Co. Although Zanstell is in good financial condition, there is a small possibility that the company could file for bankruptcy during the next 10 years, in which case it would stop making payments to investors who purchased the bonds. Thus, there is a small possibility that investors could lose most of their investment in these bonds. The only way that investors would even consider purchasing bonds issued by Zanstell is if the annualized yield offered on these bonds is higher than the Treasury bond yield. Zanstell's bonds presently offer a yield of 8 percent, which reflects a 1 percentage point credit risk premium. At this yield, some investors may be willing to purchase Zanstell's bonds because they think the company should have sufficient cash flows to repay its debt over

default. The credit risk pre mium might be 1 percent

www.moodys.com Credit rating information.

The rating agencies charge the issuers of debt securities a fee for assessing the credit risk of those securities. The ratings are then provided through various financial media outlets at no cost to investors. The most popular rating agencies are Moody's Investors Service and Standard & Poor's Corporation; Exhibit 3.1 summarizes their rating classification schedules. The ratings issued by Moody's range from Aaa for the highest quality to C for the lowest quality, and those issued by Standard & Poor's range from AAA to D. Because these rating agencies use different methods to assess the creditworthiness of firms and state governments, a particular bond could be rated at a different quality level by each agency. However, the differences are usually small.

Commercial banks typically invest only in **investment-grade bonds**, which are bonds rated as Baa or better by Moody's and as BBB or better by Standard & Poor's. Other financial institutions, such as pension funds and insurance companies, might invest in bonds that are rated lower and offer the potential for higher returns.

At a given point in time, the credit risk premium offered on a corporate bond is higher for bonds that are rated lower and, therefore, are more likely to on highly rated corporate bonds, 2.5 percent on medium-quality corporate bonds, and 5 percent on low-quality bonds.

Exhibit 3.1 Rating Classification by Rating Agencies

Highest quality	Aaa
High quality	Aa
High–medium quality	A
Medium quality	Baa
Medium–low quality	Ba
Low quality (speculative)	B
Poor quality	C
Very poor quality	D
Lowest quality (in default)	