Financial Institutions Management

A Risk Management Approach

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Financial Institutions Management

A Risk Management Approach

Tenth Edition

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Mc Graw Hill

FINANCIAL INSTITUTIONS MANAGEMENT: A RISK MANAGEMENT APPROACH, TENTH EDITION

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 LWI 24 23 22 21 20

ISBN 978-1-260-01382-5 (bound edition)
MHID 1-260-01382-0 (bound edition)

Portfolio Manager: *Charles Synovec*
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Compositor: *SPi Global*

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Library of Congress Cataloging-in-Publication Data

Names: Saunders, Anthony, 1949- author. | Cornett, Marcia Millon, author. | Erhemjamts, Otgontsetseg, author.
Title: Financial institutions management : a risk management approach / Anthony Saunders, John M. Schiff Professor of Finance, Salomon Center, Stern School of Business, New York University, Marcia Cornett, Robert A. and Julie E. Dorn Professor of Finance, Bentley University, Otgontsetseg (Otgo) Erhemjamts, Professor of Finance and Associate Dean of Business, Bentley University.
Description: Tenth edition. | New York, NY : McGraw-Hill Education, [2021] | Includes index.
Identifiers: LCCN 2019033339 | ISBN 9781260013825 (paperback) | ISBN 9781260705645 (ebook)
Subjects: LCSH: Financial institutions–United States–Management. | Risk management–United States. | Financial services industry–United States–Management.
Classification: LCC HG181 .S33 2021 | DDC 332.1068–dc23
LC record available at https://lccn.loc.gov/2019033339

mheducation.com/highered

To all my PhD students over the years.
Anthony Saunders

To my parents, Tom and Sue.
Marcia Millon Cornett

To my best friend and husband, Tumen.
Otgo Erhemjamts

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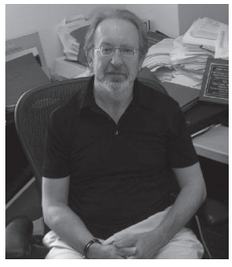

Courtesy of Anthony Saunders

Anthony Saunders

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Courtesy of Marcia Millon Cornett

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Courtesy of Chris San Antonio-Tunis

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Preface

The last 35 years have been dramatic for the financial services industry. In the 1990s and 2000s, boundaries between the traditional industry sectors, such as commercial banking and investment banking, broke down, and competition became increasingly global in nature. Many forces contributed to this breakdown in interindustry and intercountry barriers, including financial innovation, technology, taxation, and regulation. Then in 2008–2009, the financial services industry experienced the worst financial crisis since the Great Depression. Even into the mid-2010s, the U.S. and world economies had not fully recovered from this crisis. It is in this context that this book is written. Although the traditional nature of each sector's product activity is analyzed, a greater emphasis is placed on *new* areas of activities such as asset securitization, off-balance-sheet banking, international banking, and on changes occurring as a result of the financial crisis.

When the first edition of this text was released in 1994, it was the first to analyze modern financial institutions management from a risk perspective—thus, the title, *Financial Institutions Management: A Modern Perspective*. At that time, traditional texts presented an overview of the industry sector by sector, concentrating on balance sheet presentations and overlooking management decision-making and risk management. Over the last 20 years, other texts have followed this change, such that a risk management approach to analyzing modern financial institutions is now well accepted—thus, the title: *Financial Institutions Management: A Risk Management Approach*.

The tenth edition of this text takes the same innovative approach taken in the first nine editions and focuses on managing return and risk in modern financial institutions (FIs). *Financial Institutions Management*'s central theme is that the risks faced by FI managers and the methods and markets through which these risks are managed are similar whether an institution is chartered as a commercial bank, a savings bank, an investment bank, or an insurance company.

As in any stockholder-owned corporation, the goal of FI managers should always be to maximize the value of the financial institution. However, pursuit of value maximization does not mean that risk management can be ignored.

Indeed, modern FIs are in the risk management business. As we discuss in this book, in a world of perfect and frictionless capital markets, FIs would not exist and individuals would manage their own financial assets and portfolios. But since real-world financial markets are not perfect, FIs provide the positive function of bearing and managing risk on behalf of their customers through the pooling of risks and the sale of their services as risk specialists.

INTENDED AUDIENCE

Financial Institutions Management: A Risk Management Approach is aimed at upper-level undergraduate, MSF, audiences. Occasionally, there are more technical sections. *These sections may be included or dropped from the chapter reading, depending on the rigor of the course, without harming the continuity of the chapters.*

MAIN FEATURES

Throughout the text, special features have been integrated to encourage student interaction with the text and to aid in absorbing the material. Some of these features include:

- **In-chapter Internet Exercises and references,** which detail instructions for accessing important recent financial data online.
- **International material highlights,** which call out material relating to global issues.
- **In-chapter Examples,** which provide numerical demonstrations of the analytics described in various chapters.
- **Bold key terms and marginal glossary,** which highlight and define the main terms and concepts throughout the chapter.
- **In-chapter Concept Questions,** which allow students to test themselves on the main concepts within each major chapter section.
- **Industry Perspectives,** which demonstrate the application of chapter material to real current events.

ORGANIZATION

Since our focus is on return and risk and the sources of that return and risk, this book relates ways in which the managers of modern FIs can expand return with a managed level of risk to achieve the best, or most favorable, return-risk outcome for FI owners.

Chapter 1 introduces the special functions of FIs and takes an analytical look at how financial intermediation benefits today's economy. Chapters 2 through 6 provide an overview describing the key balance sheet and regulatory features of the major sectors of the U.S. financial services industry. We discuss depository institutions in Chapter 2, finance companies in Chapter 3, securities firms and investment banks in Chapter 4, mutual funds and hedge funds in Chapter 5, and insurance institutions in Chapter 6. In Chapter 7, we preview the risk measurement and management sections with an overview of the risks facing a modern FI. We divide the chapters on risk measurement and management into two sections: measuring risk and managing risk.

In Chapters 8 and 9, we start the risk measurement section by investigating the net interest margin as a source of profitability and risk with a focus on the effects of interest rate volatility and the mismatching of asset and liability durations on FI risk exposure. In Chapter 10, we look at the measurement of credit risk on individual loans and bonds and how this risk adversely affects an FI's profits through losses and provisions against the loan and debt security portfolio. In Chapter 11, we look at the risk of loan (asset) portfolios and the effects of loan concentrations on risk exposure. In addition, as a by-product of the provision of their interest rate and credit intermediation services, FIs face liquidity risk. We analyze the special nature of this risk in Chapter 12.

Modern FIs do more than domestic maturity mismatching and credit extensions. They also are increasingly engaging in foreign exchange activities and overseas financial investments (Chapter 13) and engaging in sovereign lending and securities

activities (Chapter 14). In Chapter 15, we analyze market risk, a risk incurred by FIs in trading assets and liabilities due to changes in interest rates, exchange rates, and other asset prices.

In addition, modern FIs do more than generate returns and bear risk through traditional maturity mismatching and credit extensions. They also are increasingly engaging in off-balance-sheet activities to generate fee income (Chapter 16) and making technological investments to reduce costs (Chapter 17). Financial technology, or fintech, refers to the use of technology to deliver financial solutions in a manner that competes with traditional financial methods. While similar to technology, fintech is defined as "technology-enabled innovation in financial services that could result in new business models, applications, processes, or products with an associated material effect on the provision of financial services." Fintech risk (Chapter 18) involves the risk that fintech firms could disrupt business of financial services firms in the form of lost customers and lost revenue. Thus, fintech risk is broader and wider ranging than technology risk. Each of these has implications for the size and variability of an FI's profits and/or revenues.

In Chapter 19, we begin the risk management section by looking at ways in which FIs can insulate themselves from liquidity risk. In Chapter 20, we look at the key role deposit insurance and other guaranty schemes play in reducing liquidity risk. At the core of FI risk insulation are the size and adequacy of the owners' capital or equity investment in the FI, which is the focus of Chapter 21. Chapter 22 analyzes how and why product and geographic diversification–both domestic and international–can improve an FI's return-risk performance and the impact of regulation on the diversification opportunity set. Chapters 23 through 27 review various new markets and instruments that have been innovated or engineered to allow FIs to better manage three important types of risk: interest rate risk, credit risk, and foreign exchange risk. These markets and instruments and their strategic use by FIs include futures and forwards (Chapter 23); options, caps, floors, and collars (Chapter 24); swaps (Chapter 25); loan sales (Chapter 26); and securitization (Chapter 27).

CHANGES IN THIS EDITION

Each chapter in this edition has been revised thoroughly to reflect the most up-to-date information available. End-of-chapter questions and problem material have also been expanded and updated to provide a complete selection of testing material.

The following are some of the new features of this revision:

- A discussion of the rise of fintech firms has been added to Chapters 1, 2, and 7.
- Chapter 2 includes discussions of the revised Volcker Rule as well as the impact of Brexit on foreign banks.
- Chapter 4 includes new discussions on global IPOs, as well as transitions from LIBOR to SOFR.
- Chapter 6 includes a new discussion on catastrophe bonds and insured losses from severe weather events.
- Updates on the major changes proposed for the regulation of financial institutions are included where appropriate throughout the book.
- Chapters 8 and 9 discuss the Fed's debate and decision to increase interest rates since 2015.

- Chapter 10 includes a discussion of the rise of student loan defaults.
- Chapter 13 includes a discussion of the foreign exchange crisis in Turkey. The Big Mac index used to measure purchasing power parity has also been added to the chapter.
- Chapter 14 has an added discussion on Venezuela's hyperinflation crisis.
- Chapter 15 has a new detailed discussion on the revised standardized approach for market risk.
- Chapter 18 is an entirely new chapter which discusses the evolution on fintech, changing relationship between banks and fintechs, the types of fintech innovations (e.g., mobile wallets, peer-to-peer payments, digital currencies, business-to-business payments, digital exchange platforms, blockchain, artificial intelligence, machine learning, Internet of things, crowdfunding, lending marketplaces, high-frequency trading, robo-advice), and regulatory approaches to fintech.
- Chapter 21 has significant updates including a new section on the 2017 Basel III reforms, which includes discussions on the standardized approach for credit risk, operational risk framework, leverage ratio framework, and output floor.
- Many tables and figures in all chapters have been revised to include the most recently available data.
- Many EOC problems have been revised or updated.

We have retained and updated these features:

- The **risk approach** of *Financial Institutions Management* has been retained, keeping the first section of the text as an introduction and the last two sections as a risk measurement and risk management summary, respectively.
- We again present a detailed look at **what is new** in each of the different sectors of the financial institutions industry in the first six chapters of the text. We have highlighted the continued **international coverage** with a global issues icon throughout the text.
- Chapter 17 includes material on electronic technology and the Internet's impact on financial services. Technological changes occurring over the last two decades have changed the way financial institutions offer services to customers, both domestically and overseas. The **effect of technology** is also referenced in other chapters where relevant.
- **Coverage of credit risk models** (including newer models, such as Moody's Analytics, CreditMetrics, and CreditRisk+) remains in the text.
- Coverage in the **Product and Geographic Expansion** chapter explores the increased inroads of banks into the insurance field, the move toward nationwide banking (in the United States), and the rapid growth of foreign banks and other intermediaries in the United States.
- Numerous highlighted **in-chapter Examples** remain in the chapters.
- **Internet references** remain throughout each chapter and Internet questions are found after the end-of-chapter questions.
- An **extensive problem set,** including web exercises, can be found at the end of each chapter that allows students to practice a variety of skills using the same data or set of circumstances.

ANCILLARIES

All supplemental materials for both students and instructors can be found on the McGraw-Hill website for the tenth edition of *Financial Institutions Management* at **www.mhhe.com/saunders10e.** Instructor materials are password protected for your security.

Print versions are available by request only–if interested, please contact your McGraw-Hill/Irwin representative. The following supplements are available for the tenth edition.

For Students

- ***Multiple-Choice Quizzes*** for each chapter consist of 10 multiple-choice questions that reflect key concepts from the text. These quizzes have instant grading.
- ***Appendices*** consist of material that has been removed from previous editions of the print textbook to allow room for new topics.

For Instructors

- The ***Test Bank,*** updated by Leslie Rush, University of Oahu Hawaii–West, offers multiple-choice and true/false questions that are designed to apply specifically to this text and this edition's revisions.
- The ***Instructor's Manual,*** created by author Marcia Millon Cornett, contains answers to the text's Questions and Problems at the end of each chapter and chapter outlines.
- The ***PowerPoint Presentations,*** revised by Courtney Baggett, Troy, summarize the main points of each chapter in a step-by-step fashion. These slideshows can be edited by instructors to customize presentations.
- The ***Digital Image Library*** contains electronic versions of all figures and tables from the tenth edition of the text.

Acknowledgments

Finally, we would like to thank the numerous colleagues who assisted with the previous editions of this book. Of great help were the book reviewers whose painstaking comments and advice guided the text through its eight revisions.

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We very much appreciate the contributions of the book team at McGraw-Hill Education: Chuck Synovec, Executive Brand Manager; Allison McCabe-Carroll, Senior Product Developer; Trina Mauer, Senior Marketing Manager; and Sherry Kane; Senior Content Project Manager. We are also grateful to our secretaries and assistants, Robyn Vanterpool, Ingrid Persaud, Anand Srinivasan, Brenda Webb, Rebecca Roach, and Rhianna Joffrion.

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Chapter **One**

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- Appendix 1B: Monetary Policy Tools

Why Are Financial Institutions Special?

INTRODUCTION

Over the century, the financial services industry has come full cycle. Originally, the banking industry operated as a full-service industry, performing directly or indirectly all financial services (commercial banking, investment banking, stock investing services, insurance providers, etc.). In the early 1930s, the economic and industrial collapse resulted in the separation of some of these activities. In the 1970s and 1980s, new, relatively unregulated financial services industries sprang up (mutual funds, brokerage funds, etc.) that separated financial services functions even further. As we entered the 21st century, regulatory barriers, technology, and financial innovation changes were such that a full set of financial services could again be offered by a single financial services firm under the umbrella of a financial services holding company. Not only did the boundaries between traditional industry sectors change, but competition became global in nature as well. For example, JPMorgan Chase is the world's sixth largest financial services holding company, operating in 60 countries. The firm operates a commercial bank, JPMorgan Chase Bank, an investment bank, J.P. Morgan Securities (which also sells mutual funds), and an insurance company, J.P. Morgan Insurance Agency. During the 2008–2009 financial crisis, this financial services holding company purchased a savings institution, Washington Mutual, and several investment banks, including Bear Stearns.

Then came the late 2000s when the United States and indeed the world experienced a collapse of financial markets second only to that experienced during the Great Depression. The financial crisis produced a major reshaping of all financial institution (FI) sectors and the end of many major FIs, e.g., Bear Stearns and Lehman Brothers. The result was a call by the Obama administration to again separate activities performed by individual FIs.

As the competitive environment changes, attention to profit and, more than ever, risk becomes increasingly important. The major themes of this book are the measurement and management of the risks of financial institutions. Financial institutions (e.g., banks, credit unions, insurance companies, and mutual funds) perform the essential function of channeling funds from those with surplus funds (suppliers of funds) to

those with shortages of funds (users of funds). In 2018, U.S. FIs held assets totaling more than $74.34 trillion. In contrast, the U.S. motor vehicle and parts industry (e.g., General Motors and Ford Motor Corp.) held total assets of $0.59 trillion. Of the top 50 companies in the United States, 39 were financial institutions.

Although we might categorize or group FIs and the services they perform as life insurance companies, banks, investment banks, and so on, they face many common risks. Specifically, all FIs described in this chapter and Chapters 2 through 6 (1) hold some assets that are potentially subject to default or credit risk and (2) tend to mismatch the maturities of their balance sheet assets and liabilities to a greater or lesser extent and are thus exposed to interest rate risk. Moreover, all FIs are exposed to some degree of liability withdrawal or liquidity risk, depending on the type of claims they have sold to liability holders. In addition, most FIs are exposed to some type of underwriting risk, whether through the sale of securities or the issue of various types of credit guarantees on or off the balance sheet. Finally, all FIs are exposed to operating risks because the production of financial services requires the use of real resources and back-office support systems (labor and technology combined to provide services).

Because of these risks and the special role that FIs play in the financial system, FIs are singled out for special regulatory attention. In this chapter, we first examine questions related to this specialness. In particular, what are the special functions that FIs–both depository institutions (banks, savings institutions, and credit unions) and nondepository institutions (insurance companies, securities firms, investment banks, finance companies, and mutual funds)–provide? These functions are summarized in Table 1–1. How do these functions benefit the economy? Second, we investigate what makes some FIs more special than others. Third, we look at how unique and long-lived the special functions of FIs really are. As part of this discussion, we briefly examine how changes in the way FIs deliver services played a major part in the events leading up to the severe financial crisis of the late 2000s. A more detailed

TABLE 1–1 Areas of Financial Intermediaries' Specialness in the Provision of Services

Information costs: The aggregation of funds in an FI provides greater incentive to collect information about customers (such as corporations) and to monitor their actions. The relatively large size of the FI allows this collection of information to be accomplished at a lower average cost (so-called economies of scale) than would be the case for individuals.
Liquidity and price risk: FIs provide financial claims to household savers with superior liquidity attributes and with lower price risk.
Transaction cost services: Similar to economies of scale in information production costs, an FI's size can result in economies of scale in transaction costs.
Maturity intermediation: FIs can better bear the risk of mismatching the maturities of their assets and liabilities.
Transmission of monetary supply: Depository institutions are the conduit through which monetary policy actions by the country's central bank (the Federal Reserve) impact the rest of the financial system and the economy.
Credit allocation: FIs are often viewed as the major, and sometimes only, source of financing for particular sectors of the economy, such as farming, small business, and residential real estate.
Intergenerational wealth transfers: FIs, especially life insurance companies and pension funds, provide savers with the ability to transfer wealth from one generation to the next.
Payment services: The efficiency with which depository institutions provide payment services such as check clearing directly benefits the economy.
Denomination intermediation: FIs, such as mutual funds, allow small investors to overcome constraints to buying assets imposed by large minimum denomination size.

discussion of the causes of, major events during, and regulatory and industry changes resulting from the financial crisis is provided in Appendix 1A to the chapter (located at the book's website, **www.mhhe.com/saunders10e**).

FINANCIAL INSTITUTIONS' SPECIALNESS

To understand the important economic function of FIs, imagine a simple world in which FIs do not exist. In such a world, households generating excess savings by consuming less than they earn would have the basic choice: they could hold cash as an asset or invest in the securities issued by corporations. In general, corporations issue securities to finance their investments in real assets and cover the gap between their investment plans and their internally generated savings such as retained earnings.

As shown in Figure 1–1, in such a world, savings would flow from households to corporations. In return, financial claims (equity and debt securities) would flow from corporations to household savers. In an economy without FIs, the level of fund flows between household savers and the corporate sector is likely to be quite low. There are several reasons for this. Once they have lent money to a firm by buying its financial claims, households need to monitor, or check, the actions of that firm. They must be sure that the firm's management neither absconds with nor wastes the funds on any projects with low or negative net present values. Such monitoring actions are extremely costly for any given household because they require considerable time and expense to collect sufficiently high-quality information relative to the size of the average household saver's investments. Given this, it is likely that each household would prefer to leave the monitoring to others. In the end, little or no monitoring would be done. The resulting lack of monitoring would reduce the attractiveness and increase the risk of investing in corporate debt and equity.

The relatively long-term nature of corporate equity and debt, and the lack of a secondary market in which households can sell these securities, creates a second disincentive for household investors to hold the direct financial claims issued by corporations. Specifically, given the choice between holding cash and holding long-term securities, households may well choose to hold cash for **liquidity** reasons, especially if they plan to use savings to finance consumption expenditures in the near future.

liquidity
The ease of converting an asset into cash.

Finally, even if financial markets existed (without FIs to operate them) to provide liquidity services by allowing households to trade corporate debt and equity securities among themselves, investors also face a **price risk** on the sale of securities, and the secondary market trading of securities involves various transaction costs. That is, the price at which household investors can sell securities on secondary markets such as the New York Stock Exchange (NYSE) may well differ from the price they initially paid for the securities.

price risk
The risk that the sale price of an asset will be lower than the purchase price of that asset.

Because of (1) monitoring costs, (2) liquidity costs, and (3) price risk, the average household saver may view direct investment in corporate securities as an unattractive proposition and prefer either not to save or to save in the form of cash.

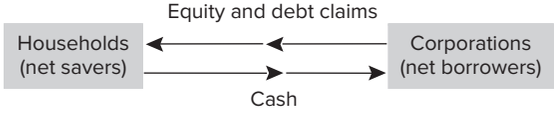


FIGURE 1–1
Flow of Funds in a World Without FIs

However, the economy has developed an alternative and indirect way to channel household savings to the corporate sector. This is to channel savings via FIs. Because of costs of monitoring, liquidity, and price risk, as well as for other reasons, explained later, savers often prefer to hold the financial claims issued by FIs rather than those issued by corporations. Consider Figure 1–2, which is a closer representation than Figure 1–1 of the world in which we live and the way funds flow in our economy. Notice how financial institutions or intermediaries are standing, or intermediating, between the household and corporate sectors. These intermediaries fulfill two functions. Any given FI might specialize in one or the other or might do both simultaneously.

FIs Function as Brokers

The first function is the brokerage function. When acting as a pure broker, an FI acts as an agent for the saver by providing information and transaction services. For example, full-service securities firms (e.g., Bank of America Merrill Lynch) carry out investment research and make investment recommendations for their retail (or household) clients as well as conduct the purchase or sale of securities for commission or fees. Discount brokers (e.g., Charles Schwab) carry out the purchase or sale of securities at better prices and with greater efficiency than household savers could achieve by trading on their own. This efficiency results in reduced costs of trading, or **economies of scale** (see Chapter 22 for a detailed discussion). Similarly, independent insurance brokers identify the best types of insurance policies household savers can buy to fit their savings and retirement plans. In fulfilling a brokerage function, the FI plays an extremely important role by reducing transaction and information costs or imperfections between households and corporations. Thus, the FI encourages a higher rate of savings than would otherwise exist.

economies of scale
The concept that the cost reduction in trading and other transaction services results in increased efficiency when FIs perform these services.

FIs Function as Asset Transformers

The second function is the asset-transformation function. In acting as an **asset transformer,** the FI issues financial claims that are far more attractive to household savers than the claims directly issued by corporations. That is, for many households, the financial claims issued by FIs dominate those issued directly by corporations as a result of lower monitoring costs, lower liquidity costs, and lower price risk. In acting as asset transformers, FIs purchase the financial claims issued by corporations—equities, bonds, and other debt claims called **primary securities**—and finance these purchases by selling financial claims to household investors and other sectors in the form of deposits, insurance policies, and so on. The financial claims of FIs may be considered **secondary securities** because these assets are backed by the primary securities issued by commercial corporations that in turn invest in real assets. Specifically, FIs are independent market parties that create financial products whose value added to their clients is the transformation of financial risk.

asset transformer
An FI issues financial claims that are more attractive to household savers than the claims directly issued by corporations.

primary securities
Securities issued by corporations and backed by the real assets of those corporations.

secondary securities
Securities issued by FIs and backed by primary securities.

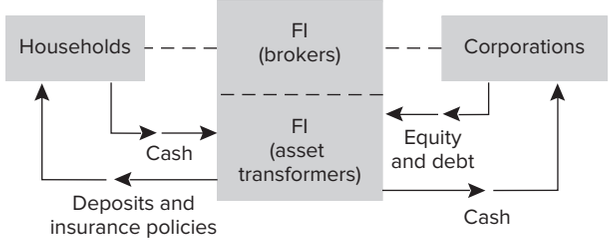


FIGURE 1–2
Flow of Funds in a World with FIs

How can FIs purchase the direct or primary securities issued by corporations and profitably transform them into secondary securities more attractive to household savers? This question strikes at the very heart of what makes FIs special and important to the economy. The answer lies in the ability of FIs to better resolve the three costs facing a saver who chooses to invest directly in corporate securities.

Information Costs

One problem faced by an average saver directly investing in a commercial firm's financial claims is the high cost of information collection. Household savers must monitor the actions of firms in a timely and complete fashion after purchasing securities. Failure to monitor exposes investors to **agency costs,** that is, the risk that the firm's owners or managers will take actions with the saver's money contrary to the promises contained in the covenants of its securities contracts. Monitoring costs are part of overall agency costs. That is, agency costs arise whenever economic agents enter into contracts in a world of incomplete information and thus costly information collection. The more difficult and costly it is to collect information, the more likely it is that contracts will be broken. In this case, the saver (the so-called principal) could be harmed by the actions taken by the borrowing firm (the so-called agent).

agency costs
Costs relating to the risk that the owners and managers of firms that receive savers' funds will take actions with those funds contrary to the best interests of the savers.

FI's Role as Delegated Monitor

One solution to this problem is for a large number of small savers to place their funds with a single FI. This FI groups these funds together and invests in the direct or primary financial claims issued by firms. This agglomeration of funds resolves a number of problems. The large FI now has a much greater incentive to collect information and monitor actions of the firm because it has far more at stake than does any small individual household. In a sense, small savers have appointed the FI as a **delegated monitor** to act on their behalf. Not only does the FI have a greater incentive to collect information, but the average cost of collecting information is lower. For example, the cost to a small investor of buying a $100 broker's report may seem inordinately high for a $10,000 investment. For an FI with $10 million under management, however, the cost seems trivial. Such economies of scale of information production and collection tend to enhance the advantages to savers of using FIs rather than directly investing themselves.

delegated monitor
An economic agent appointed to act on behalf of smaller agents in collecting information and/or investing funds on their behalf.

FI's Role as Information Producer

Second, associated with the greater incentive to monitor and the costs involved in failing to monitor appropriately, FIs may develop new secondary securities that enable them to monitor more effectively. Thus, a richer menu of contracts may improve the monitoring abilities of FIs. Perhaps the classic example of this is the bank loan. Bank loans are generally shorter-term debt contracts than bond contracts. This short-term nature allows the FI to exercise more monitoring power and control over the borrower. In particular, the information the FI generates regarding the firm is frequently updated as its loan renewal decisions are made. When bank loan contracts are sufficiently short term, the banker becomes almost like an insider to the firm regarding informational familiarity with its operations and financial conditions. Indeed, this more frequent monitoring often replaces the need for the relatively inflexible and hard-to-enforce covenants found in bond contracts. Thus, by acting as a delegated monitor and producing better and more timely information, FIs reduce the degree of information imperfection and asymmetry between the ultimate suppliers and users of funds in the economy.

Liquidity and Price Risk

In addition to improving the flow and quality of information, FIs provide financial or secondary claims to household and other savers. Often, these claims have superior liquidity attributes compared with those of primary securities such as corporate equity and bonds. For example, depository institutions issue transaction account deposit contracts with a fixed principal value (and often a guaranteed interest rate) that can be withdrawn immediately on demand by household savers. Money market mutual funds issue shares to household savers that allow those savers to enjoy almost fixed principal (depositlike) contracts while often earning interest rates higher than those on bank deposits. Even life insurance companies allow policyholders to borrow against their policies held with the company at very short notice. The real puzzle is how FIs such as depository institutions can offer highly liquid and low price risk contracts to savers on the liability side of their balance sheets while investing in relatively illiquid and higher price risk securities issued by corporations on the asset side. Furthermore, how can FIs be confident enough to guarantee that they can provide liquidity services to investors and savers when they themselves invest in risky asset portfolios? And why should savers and investors believe FIs' promises regarding the liquidity of their investments?

diversify
Reducing risk by holding a number of different securities in a portfolio.

The answers to these questions lie in the ability of FIs to **diversify** away some but not all of their portfolio risks. The concept of diversification is familiar to all students of finance. Basically, as long as the returns on different investments are not perfectly *positively* correlated, by exploiting the benefits of size, FIs diversify away significant amounts of portfolio risk–especially the risk specific to the individual firm issuing any given security. Indeed, research has shown that equal investments in as few as 15 securities can bring significant diversification benefits to FIs and portfolio managers. Further, as the number of securities in an FI's asset portfolio increases beyond 15 securities, portfolio risk falls, albeit at a diminishing rate. What is really going on here is that FIs exploit the law of large numbers in their investments, achieving a significant amount of diversification, whereas because of their small size, many household savers are constrained to holding relatively undiversified portfolios. This risk diversification allows an FI to predict more accurately its expected return on its asset portfolio. A domestically and globally diversified FI may be able to generate an almost risk-free return on its assets. As a result, it can credibly fulfill its promise to households to supply highly liquid claims with little price or capital value risk. A good example of this is the ability of a bank to offer highly liquid demand deposits–with a fixed principal value–as liabilities, while at the same time, investing in risky loans as assets. As long as an FI is sufficiently large to gain from diversification and monitoring, its financial claims are likely to be viewed as liquid and attractive to small savers compared with direct investments in the capital market.

Other Special Services

The preceding discussion has concentrated on three general or special services provided by FIs: reducing household savers' monitoring costs, increasing their liquidity, and reducing their price risk exposure. Next, we discuss two other special services provided by FIs: reduced transaction costs and maturity intermediation.

Reduced Transaction Costs

Just as FIs provide potential economies of scale in information collection, they also provide potential economies of scale in transaction costs. For example, since May 1, 1975, fixed commissions for equity trades on the NYSE have been abolished. As a

result, small retail buyers face higher commission charges or transaction costs than do large wholesale buyers. By grouping their assets in FIs that purchase assets in bulk–such as in mutual funds and pension funds–household savers can reduce the transaction costs of their asset purchases. In addition, bid-ask (buy-sell) spreads are normally lower for assets bought and sold in large quantities.

Maturity Intermediation

An additional dimension of FIs' ability to reduce risk by diversification is that they can better bear the risk of mismatching the maturities of their assets and liabilities than can small household savers. Thus, FIs offer maturity intermediation services to the rest of the economy. Specifically, through maturity mismatching, FIs can produce long-term contracts, such as long-term, fixed-rate mortgage loans to households, while still raising funds with short-term liability contracts. Further, while such mismatches can subject an FI to interest rate risk (see Chapters 8 and 9), a large FI is better able to manage this risk through its superior access to markets and instruments for hedging such as loan sales and securitization (Chapters 26 and 27); futures (Chapter 23); swaps (Chapter 25); and options, caps, floors, and collars (Chapter 24).

Concept Questions

1. What are the three major risks to household savers from direct security purchases?
2. What are two major differences between brokers (such as security brokers) and depository institutions (such as commercial banks)?
3. What are primary securities and secondary securities?
4. What is the link between asset diversification and the liquidity of deposit contracts?

OTHER ASPECTS OF SPECIALNESS

To a certain extent, financial institutions exist because of financial market imperfections. If information is available costlessly to all participants, savers would not need FIs to act as either their broker or their delegated monitors. However, if there are social benefits to intermediation, such as the transmission of monetary policy or credit allocation, then FIs would exist even in the absence of financial market imperfections. The theory of the flow of funds points to three principal reasons for believing that FIs are special, along with two other associated reasons. In reality, academics, policymakers, and regulators identify other areas of specialness relating to certain specific functions of FIs or groups of FIs. We discuss these next.

The Transmission of Monetary Policy

The highly liquid nature of depository institution deposits has resulted in their acceptance by the public as the most widely used medium of exchange in the economy. Indeed, at the core of the two most commonly used definitions of the money supply–M1 and M2[1]–lie depository institutions' deposit contracts. Because

[1] M1: ($3,738.4 billion outstanding in January 2019) consists of (1) currency outside the U.S. Treasury, Federal Reserve Banks, and the vaults of depository institutions; (2) traveler's checks of nonbank issuers; (3) demand deposits at all commercial banks other than those owed to depository institutions, the U.S. government, and foreign banks and official institutions, less cash items in the process of collection and Federal Reserve float; and (4) other checkable deposits (OCDs). M2: ($14,504.7 billion outstanding in January 2019) consists of M1 plus (1) savings and small time deposits (time deposits in amounts of less than $100,000) and (2) other nondeposit obligations of depository institutions.

the liabilities of depository institutions are a significant component of the money supply that impacts the rate of inflation, they play a key role in the *transmission of monetary policy* from the central bank to the rest of the economy. That is, depository institutions are the conduit through which monetary policy actions impact the rest of the financial sector and the economy in general. Indeed, a major reason the United States and world governments bailed out many depository institutions and increased the deposit insurance limit from $100,000 to $250,000 per person per bank during the financial crisis was so that central banks could implement aggressive monetary policy actions to combat collapsing financial markets. Monetary policy actions include open market operations (the purchase and sale of securities in the U.S. Treasury securities market), setting the discount rate (the rate charged on "lender of last resort" borrowing from the Federal Reserve), and setting reserve requirements (the minimum amount of reserve assets depository institutions must hold to back deposits held as liabilities on their balance sheets). Appendix 1B to the chapter (located at the book's website, **www.mhhe.com/saunders10e**) reviews the tools used by the Federal Reserve to implement monetary policy.

www.federalreserve.gov

Credit Allocation

A further reason FIs are often viewed as special is that they are the major and sometimes the only source of financing for a particular sector of the economy pre-identified as being in special need of financing. Policymakers in the United States and a number of other countries, such as the United Kingdom, have identified *residential real estate* as needing special subsidies. This has enhanced the specialness of FIs that most commonly service the needs of that sector. In the United States, savings associations and savings banks have traditionally served the credit needs of the residential real estate sector. In a similar fashion, farming is an especially important area of the economy in terms of the overall social welfare of the population. The U.S. government has even directly encouraged financial institutions to specialize in financing this area of activity through the creation of Federal Farm Credit Banks. Presumably the provision of credit to make houses more affordable or farms more viable leads to a more stable and productive society.

Intergenerational Wealth Transfers or Time Intermediation

The ability of savers to transfer wealth across generations is also of great importance to the social well-being of a country. Because of this, life insurance and pension funds (see Chapter 6) are often especially encouraged, via special taxation relief and other subsidy mechanisms, to service and accommodate those needs. Often this wealth transfer process avoids the full marginal tax treatment that a direct payment would incur.

Payment Services

Depository institutions (see Chapter 2) are special in that the efficiency with which they provide payment services directly benefits the economy. Two important payment services are check-clearing and wire transfer services. For example, on any given day, trillions of dollars worth of payments are effected through Fedwire and CHIPS, the two large wholesale payment wire networks in the United States (see Chapter 17). Any breakdowns in these systems probably would produce gridlock in the payment system with resulting harmful effects to the economy.

Denomination Intermediation

Both money market and debt–equity mutual funds are special because they provide services relating to denomination intermediation (see Chapter 5). Because they are

sold in very large denominations, many assets are either out of reach of individual savers or would result in savers' holding highly undiversified asset portfolios. For example, the minimum size of a negotiable certificate of deposit (CD) is $100,000, and commercial paper (short-term corporate debt) is often sold in minimum packages of $250,000 or more. Individually, a saver may be unable to purchase such instruments. However, by buying shares in a money market mutual fund along with other small investors, household savers overcome the constraints to buying assets imposed by large minimum denomination sizes. Such indirect access to these markets may allow small savers to generate higher returns on their portfolios as well.

SPECIALNESS AND REGULATION

In the preceding section, FIs were shown to be special because of the various services they provide to sectors of the economy. Failure to provide these services or a breakdown in their efficient provision can be costly to both the ultimate sources (households) and users (firms) of savings. The financial crisis of the late 2000s is a prime example of how such a breakdown in the provision of financial services can cripple financial markets worldwide and bring the world economy into a recession. The **negative externalities**[2] affecting firms and households when something goes wrong in the FI sector of the economy make a case for regulation. That is, FIs are regulated to protect against a disruption in the provision of the services discussed earlier and the costs this would impose on the economy and society at large. For example, bank failures may destroy household savings and at the same time restrict a firm's access to credit. Insurance company failures may leave households totally exposed in old age to catastrophic illnesses and sudden drops in income on retirement. Further, individual FI failures may create doubts in savers' minds regarding the stability and solvency of FIs in general and cause panics and even runs on sound institutions. Indeed, this possibility provided the reasoning in 2009 for an increase in the deposit insurance cap to $250,000 per person per bank. At this time, the FDIC was more concerned about the possibility of contagious runs as a few major depository institutions (DIs) (e.g., IndyMac, Washington Mutual) failed or nearly failed. The FDIC wanted to instill confidence in the banking system and made the change to avoid massive depositor runs from many of the troubled (and even safer) DIs, more DI failures, and an even larger collapse of the financial system.

negative externalities
Action by an economic agent imposing costs on other economic agents.

Although regulation may be socially beneficial, it also imposes private costs, or a regulatory burden, on individual FI owners and managers. For example, regulations prohibit commercial banks from making loans to individual borrowers that exceed more than 15 percent of their equity capital even though the loans may have a positive net present value to the bank. Consequently, regulation is an attempt to enhance the social welfare benefits and mitigate the social costs of the provision of FI services. The private costs of regulation relative to the private benefits, for the producers of financial services, is called the **net regulatory burden.** Although they may be socially beneficial, these costs add to private operating costs. To the extent that

net regulatory burden
The difference between the private costs of regulations and the private benefits for the producers of financial services.

[2] A good example of a negative externality is the costs faced by small businesses in a one-bank town if the local bank fails. These businesses could find it difficult to get financing elsewhere, and their customers could be similarly disadvantaged. As a result, the failure of the bank may have a negative or contagious effect on the economic prospects of the whole community, resulting in lower sales, production, and employment.

these additional costs help to avoid negative externalities and to ensure the smooth and efficient operation of the economy, the net regulatory burden is positive.

Six types of regulation seek to enhance the net social welfare benefits of financial intermediaries' services: (1) safety and soundness regulation, (2) monetary policy regulation, (3) credit allocation regulation, (4) consumer protection regulation, (5) investor protection regulation, and (6) entry and chartering regulation. Regulations are imposed differentially on the various types of FIs. For example, depository institutions are the most heavily regulated of the FIs. Finance companies, on the other hand, are subject to many fewer regulations. Regulation can also be imposed at the federal or the state level and occasionally at the international level, as in the case of bank capital requirements (see Chapter 21). Finally, because of the historically segmented nature of the U.S. FI system, many regulations in that system are institution specific, for example, consumer protection legislation imposed on bank credit allocation to local communities. However, these institution-specific regulations are increasingly being liberalized (see Chapter 22).

Safety and Soundness Regulation

To protect depositors and borrowers against the risk of FI failure due, for example, to a lack of diversification in asset portfolios, regulators have developed layers of protective mechanisms. These mechanisms are intended to ensure the safety and soundness of the FI and thus to maintain the credibility of the FI in the eyes of its borrowers and lenders. Indeed, even during the worst of the financial crisis deposit runs at banks, savings institutions, and credit unions did not occur. This is because the safety and soundness regulations in place protected virtually all depositors from losing their money. Thus, while depository institution failures increased significantly during the crisis, depositors felt little need to run.

In the first layer of protection are requirements encouraging FIs to diversify their assets. Thus, banks are required not to make loans exceeding more than 15 percent of their own equity capital funds to any one company or borrower (see Chapter 10). A bank that has 10 percent of its assets funded by its own capital funds (and therefore 90 percent by deposits) can lend no more than 1.5 percent of its assets to any one party.

The second layer of protection concerns the minimum level of capital or equity funds that the owners of an FI need to contribute to the funding of its operations (see Chapter 21). For example, bank and insurance regulators are concerned with the minimum ratio of capital to (risk) assets. The higher the proportion of capital contributed by owners, the greater the protection against insolvency risk to outside liability claim holders such as depositors and insurance policyholders. This is because losses on the asset portfolio due, for example, to the lack of diversification are legally borne by the equity holders first, and only after equity is totally wiped out by outside liability holders. For example, in 2008, the near failure and subsequent purchase by JPMorgan Chase of Washington Mutual left Washington Mutual shareholders with very little. Consequently, by varying the required degree of equity capital, FI regulators can directly affect the degree of risk exposure faced by nonequity claim holders in FIs. Indeed, part of the Troubled Asset Relief Program (TARP) of 2008–2009 (approved by the U.S. Congress in October 2008 as a first response to the financial crisis) was the Capital Purchase Program (CPP). The goal of the CPP was to encourage U.S. financial institutions to build capital to increase the flow of financing to U.S. businesses and consumers and to support the U.S. economy. Further, regulators acted quickly to ensure the largest DIs had

sufficient capital to withstand large losses during the financial crisis. In late February 2009, the Obama administration announced that it would conduct a "stress test" of the 19 largest U.S. DIs, which would measure the ability of these DIs to withstand a protracted economic slump: unemployment rate above 10 percent and home prices dropping another 25 percent. Results of the stress test showed that 10 of the 19 DIs needed to raise a total of $74.6 billion in capital. Within a month of the May 7, 2009, release of the results the DIs had raised $149.45 billion of capital. (See Chapter 21 for more discussion on the role of capital in FIs.)

www.fdic.gov
www.sipc.org

The third layer of protection is the provision of guaranty funds such as the Deposit Insurance Fund (DIF) for depository institutions, the Security Investors Protection Corporation (SIPC) for securities firms, and the state guaranty funds established (with regulator encouragement) to meet insolvency losses to small claim holders in the life and property–casualty insurance industries (see Chapter 20). By protecting FI claim holders, when an FI fails and owners' equity or net worth is wiped out, these funds create a demand for regulation of the insured institutions to protect the funds' resources (see Chapter 20 for more discussion).[3] For example, the FDIC monitors and regulates participants in the DIF.

The fourth layer of regulation is monitoring and surveillance itself. Regulators subject all FIs, whether banks, securities firms, or insurance companies, to varying degrees of monitoring and surveillance. This involves on-site examination as well as an FI's production of accounting statements and reports on a timely basis for off-site evaluation. Just as savers appoint FIs as delegated monitors to evaluate the behavior and actions of ultimate borrowers, society appoints regulators to monitor the behavior and performance of FIs. Many of the regulatory changes proposed in reaction to the financial crisis included significant increases in the monitoring and surveillance of any financial institution whose failure could have serious systemic effects.

Finally, note that regulation is not without costs for those regulated. For example, society's regulators may require FIs to have more equity capital than private owners believe is in their own best interests. Similarly, producing the information requested by regulators is costly for FIs because it involves the time of managers, lawyers, and accountants. Again, the socially optimal amount of information may differ from an FI's privately optimal amount. As noted earlier, the differences between the private benefits to an FI from being regulated–such as insurance fund guarantees–and the private costs it faces from adhering to regulation–such as examinations–is called the *net regulatory burden*. The higher the net regulatory burden on FIs, the more inefficiently they produce any given set of financial services from a private (FI) owner's perspective.

outside money
The part of the money supply directly produced by the government or central bank, such as notes and coin.

Monetary Policy Regulation

Another motivation for regulation concerns the special role banks play in the transmission of monetary policy from the Federal Reserve (the central bank) to the rest of the economy. The problem is that the central bank directly controls only the quantity of notes and coin in the economy–called **outside money**–whereas the bulk of the money supply consists of deposits–called **inside money.** In theory, a central bank can vary the quantity of cash or outside money and directly affect a bank's reserve position as well as the amount of loans and deposits it can create without

www.federalreserve.gov

inside money
The part of the money supply produced by the private banking system.

[3] Also, a social cost rather than social benefit from regulation is the potential risk-increasing behavior (often called *moral hazard*) that results if deposit insurance and other guaranty funds provide coverage to FIs and their liability holders at less than the actuarially fair price (see Chapter 20 for further discussion).

formally regulating the bank's portfolio. In practice, regulators have chosen to impose formal controls (these are described in Appendix 1B, located at the book's website, **www.mhhe.com/saunders10e**). In most countries, regulators commonly impose a minimum level of required cash reserves to be held against deposits (see Chapter 19). Some argue that imposing such reserve requirements makes the control of the money supply and its transmission more predictable. Such reserves also add to an FI's net regulatory burden if they are more than the institution believes are necessary for its own liquidity purposes. In general, whether banks or insurance companies, all FIs would choose to hold some cash reserves–even noninterest bearing–to meet the liquidity and transaction needs of their customers directly. For well-managed FIs, however, this optimal level is normally low, especially if the central bank (or other regulatory body) does not pay interest or pays very little interest on required reserves. As a result, FIs often view required reserves as similar to a tax and as a positive cost of undertaking intermediation.

Credit Allocation Regulation

Credit allocation regulation supports the FI's lending to socially important sectors such as housing and farming. These regulations may require an FI to hold a minimum amount of assets in one particular sector of the economy or to set maximum interest rates, prices, or fees to subsidize certain sectors. Examples of asset restrictions include the quality thrift lender (QTL) test, which requires thrifts (i.e., savings institutions) to hold 65 percent of their assets in residential mortgage-related assets to retain a thrift charter, and insurance regulations, such as those in New York State that set maximums on the amount of foreign or international assets in which insurance companies can invest. Examples of interest rate restrictions are the usury laws set in many states on the maximum rates that can be charged on mortgages and/or consumer loans and regulations (now abolished) such as the Federal Reserve's Regulation Q maximums on time and savings deposit interest rates.

Such price and quantity restrictions may have justification on social welfare grounds–especially if society has a preference for strong (and subsidized) housing and farming sectors. However, they can also be harmful to FIs that have to bear the private costs of meeting many of these regulations. To the extent that the net private costs of such restrictions are positive, they add to the costs and reduce the efficiency with which FIs undertake intermediation.

Consumer Protection Regulation

Congress passed the Community Reinvestment Act (CRA) and the Home Mortgage Disclosure Act (HMDA) to prevent discrimination in lending. For example, since 1975, the HMDA has assisted the public in determining whether banks and other mortgage-lending institutions are meeting the needs of their local communities. HMDA is especially concerned about discrimination on the basis of age, race, sex, or income. Since 1990, depository institutions have reported to their chief federal regulator on a standardized form the reasons credit was granted or denied. To get some idea of the information production cost of regulatory compliance in this area, consider that the Federal Financial Institutions Examination Council (FFIEC) processed information on more than 7.3 million mortgage transactions from more than 5,852 institutions in 2017. (The council is a federal supervisory body comprising the members of the Federal Reserve, the Federal

www.ffiec.gov

www.federalreserve.gov

www.fdic.gov
www.occ.treas.gov

Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency.)[4]

Many analysts believe that community and consumer protection laws are imposing a considerable net regulatory burden on FIs without providing offsetting social benefits that enhance equal access to mortgage and lending markets. However, as deregulation proceeds and the trend toward consolidation and universal banking (see Chapter 2) continues, it is likely that such laws will be extended beyond banks to other financial service providers, such as insurance companies, that are not currently subject to CRA community lending requirements. Indeed, a new Consumer Financial Protection Bureau to protect consumers across the financial sector from unfair, deceptive, and abusive practices was a part of the Wall Street Reform and Consumer Protection Act passed by the U.S. Congress in 2010. Further, a credit card reform bill, effective in 2010, put unprecedented restrictions on the actions that may be taken by all credit card issuers against credit card holders. Included in the bill were limits on allowable interest rate increases during the first year, limits on fees and penalties credit card companies may charge, protection against arbitrary interest rate increases, provisions giving credit card holders sufficient time to pay their bills, and the abolition of universal default (a practice in which credit card issuers would raise interest rates on customers' accounts resulting from actions on other accounts, e.g., missing a payment on a utility bill would result in an increase in a credit card rate).

Investor Protection Regulation

A considerable number of laws protect investors who use investment banks directly to purchase securities and/or indirectly to access securities markets through investing in mutual or pension funds. Various laws protect investors against abuses such as insider trading, lack of disclosure, outright malfeasance, and breach of fiduciary responsibilities (see Chapter 4). Important legislation affecting investment banks and mutual funds includes the Securities Acts of 1933 and 1934, the Investment Company Act of 1940, and the Wall Street Reform and Consumer Protection Act of 2010. As with consumer protection legislation, compliance with these acts can impose a net regulatory burden on FIs.

Entry Regulation

The entry and activities of FIs are also regulated (e.g., new bank chartering regulations). Increasing or decreasing the cost of entry into a financial sector affects the profitability of firms already competing in that industry. Thus, industries heavily protected against new entrants by high direct costs (e.g., through required equity or capital contributions) and high indirect costs (e.g., by restricting individuals who can establish FIs) of entry produce bigger profits for existing firms than those in which entry is relatively easy (see Chapter 22). In addition, regulations (such as the Financial Services Modernization Act of 1999) define the scope of permitted activities under a given charter (see Chapter 22). The broader the set of financial service activities permitted under a given charter, the more valuable that charter is likely to be. Thus, barriers to entry and regulations pertaining to the scope of permitted activities affect the *charter value* of an FI and the size of its net regulatory burden.

[4] The FFIEC also publishes aggregate statistics and analysis of CRA and HMDA data. The Federal Reserve and other regulators also rate bank compliance. For example, in December 2018, the FDIC judged 8.0 percent of the banks examined to be outstanding in CRA compliance, 92.0 percent as satisfactory, 0.0 percent as needing to improve or as being in noncompliance, and 0.0 percent as being in substantial noncompliance.

Concept Questions

1. Why should more regulation be imposed on FIs than on other types of private corporations?
2. Define the concept of net regulatory burden.
3. What six major types of regulation do FIs face?

THE CHANGING DYNAMICS OF SPECIALNESS

At any moment in time, each FI supplies a set of financial services (brokerage-related, asset transformation-related, or both) and is subject to a given net regulatory burden. As the demands for the special features of financial services change as a result of changing preferences, macroeconomic conditions, and technology, one or more areas of the financial services industry become more or less profitable. Similarly, changing regulations can increase or decrease the net regulatory burden faced in supplying financial services in any given area. These demand, cost, and regulatory pressures are reflected in changing market shares in different financial service areas as some contract and others expand. Clearly, an FI seeking to survive and prosper must be flexible enough to move to growing financial service areas and away from those that are contracting. If regulatory activity restrictions inhibit or reduce the flexibility with which FIs can alter their product mix, this will reduce their competitive ability and the efficiency with which financial services are delivered. That is, activity barriers within the financial services industry may reduce the ability to diversify and potentially add to the net regulatory burden faced by FIs.

Trends in the United States

In Table 1–2, we show the changing shares of total assets in the U.S. financial services industry from 1860 to 2018. A number of important trends are evident: most apparent is the decline in the total share of depository institutions since the Second World War. Specifically, the share of depository institutions declined from 62.7 to 30.6 percent between 1948 and 2018. Thus, services provided by depository institutions (payment services, transaction costs services, information cost) have become relatively less significant as a portion of all services provided by FIs. Similarly, insurance companies also witnessed a secular decline in their share, from 23.4 to 13.6 percent.

The most dramatically increasing trend is the rising share of investment companies (mutual funds and money market mutual funds), increasing their share from 1.1 to 31.5 percent between 1948 and 2018. Investment companies differ from banks and insurance companies in that they give savers cheaper access to the direct securities markets. They do so by exploiting the comparative advantages of size and diversification, with the transformation of financial claims, such as maturity transformation, a lesser concern. Thus, open-ended mutual funds buy stocks and bonds directly in financial markets and issue savers shares whose value is linked in a direct pro rata fashion to the value of the mutual fund's asset portfolio. Similarly, money market mutual funds invest in short-term financial assets such as commercial paper, CDs, and Treasury bills and issue shares linked directly to the value of the underlying portfolio. To the extent that these funds efficiently diversify, they also offer price risk protection and liquidity services.

The Rise of Financial Services Holding Companies

To the extent that the financial services market is efficient and these trends reflect the forces of demand and supply, they indicate a trend: savers increasingly prefer the denomination intermediation and information services provided by mutual

TABLE 1–2 Percentage Shares of Assets of Financial Institutions in the United States, 1860–2018

Sources: Randall Kroszner, "The Evolution of Universal Banking and Its Regulation in Twentieth Century America," chap. 3 in Anthony Saunders and Ingo Walter, eds., *Universal Banking Financial System Design Reconsidered* (Burr Ridge, IL: Irwin, 1996); and Federal Reserve Board, "Flow of Fund Accounts," various issues. *www.federalreserve.gov*

	1860	1922	1929	1948	1960	1970	1980	2000	2005	2010	2018
Depository institutions	89.2%	77.2%	67.7%	62.7%	54.5%	56.9%	57.9%	27.9%	28.4%	31.3%	30.6%
Insurance companies	10.7	16.7	18.6	23.4	22.6	18.1	15.7	14.4	14.3	14.2	13.6
Investment companies	—	0.0	2.4	1.1	3.7	3.8	3.8	24.0	21.4	24.7	31.5
Pension funds	—	0.0	0.7	9.1	13.0	13.3	13.7	14.3	12.1	12.5	13.5
Finance companies	—	0.0	2.0	2.5	4.7	5.1	5.2	4.1	4.2	3.5	2.0
Securities brokers and dealers	0.0	5.3	8.1	1.2	1.5	2.5	3.6	15.1	18.9	13.2	7.8
Real estate investment trusts	—	—	—	—	—	0.3	0.1	0.2	0.7	0.6	1.0
Total (%)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total ($ trillions)	0.001	0.08	0.12	0.27	0.63	1.39	4.10	29.91	44.35	52.78	74.34

funds. These FIs provide investments that closely mimic diversified investments in the *direct* securities markets over the transformed financial claims offered by traditional FIs. This trend may also indicate that the net regulatory burden on traditional FIs–such as banks and insurance companies–is higher than that on investment companies. Indeed, traditional FIs are unable to produce their services as cost efficiently as they could previously.

Recognizing this changing trend, the U.S. Congress passed the Financial Services Modernization (FSM) Act, which repealed the 1933 Glass-Steagall barriers between commercial banking, insurance, and investment banking. The act, promoted as the biggest change in the regulation of financial institutions in 70 years, allowed for the creation of "financial services holding companies" that could engage in banking activities, insurance activities, and securities activities. Thus, after 70 years of partial or complete separation between insurance, investment banking, and commercial banking, the Financial Services Modernization Act of 1999 opened the door for the creation of full-service financial institutions in the United States similar to those that existed before 1933 and that exist in many other countries. As a result, while Table 1–2 lists assets of financial institutions by functional area, the financial services holding company (which combines these activities in a single financial institution) has become the dominant form of financial institution in terms of total assets.

The Shift Away from Risk Measurement and Management and the Financial Crisis

Certainly, a major event that changed and reshaped the financial services industry was the financial crisis of the late 2000s. As FIs adjusted to regulatory changes brought about by the likes of the FSM Act, one result was a dramatic increase in systemic risk of the financial system, caused in large part by a shift in the banking model from that of "originate and hold" to "originate to distribute." In the traditional model, banks take short-term deposits and other sources of funds and use them to fund longer-term loans to businesses and consumers. Banks typically hold these loans to maturity, and thus have an incentive to screen and monitor borrower activities even after a loan is made. However, the traditional banking model exposes the institution to potential liquidity, interest rate, and credit risk. In attempts to avoid these risk exposures and generate improved return–risk trade-offs, banks have shifted to an underwriting model in which they originate or warehouse loans, and then quickly sell them. Figure 1–3 shows the growth in bank loan secondary market trading from 1991 through 2018. Note the huge growth in bank loan trading even during the financial crisis of 2008–2009. When loans trade, the secondary market produces information that can substitute for the information and monitoring of banks. Further, banks may have lower incentives to collect information and monitor borrowers if they sell loans rather than keep them as part of the bank's portfolio of assets. Indeed, most large banks are organized as financial service holding companies to facilitate these new activities.

More recently, activities of shadow banks–nonfinancial service firms that perform banking services–have facilitated the change from the originate and hold model of commercial banking to the originate and distribute banking model. Participants in the shadow banking system include structured investment vehicles (SIVs), special-purpose vehicles (SPVs), asset-backed paper vehicles, credit hedge funds, asset-backed commercial paper (ABCP) conduits, limited-purpose finance companies, money market mutual funds (MMMFs), and credit hedge funds (see Chapter 22 for a detailed discussion of these FIs). In the shadow banking system, savers place their funds with

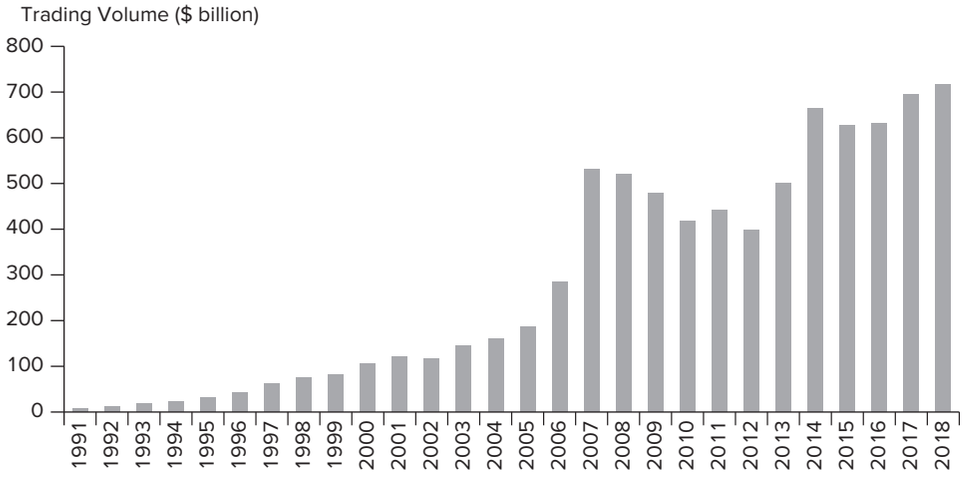


FIGURE 1–3
Bank Loan Secondary Market Trading, 1991–2018

Sources: Thomson Reuters LPC and Loan Syndication and Trading association thomsonreuters.com, lsta.org

money market mutual and similar funds, which invest these funds in the liabilities of other shadow banks. Borrowers get loans and leases from shadow banks such as finance companies rather than from banks. Like the traditional banking system, the shadow banking system intermediates the flow of funds between net savers and net borrowers. However, instead of the bank serving as the intermediary, it is the nonbank financial service firm, or shadow bank, that intermediates. Further, unlike the traditional banking system, where the complete credit intermediation is performed by a single bank, in the shadow banking system it is performed through a series of steps involving many nonbank financial service firms.

These innovations remove risk from the balance sheet of financial institutions and shift risk off the balance sheet to other parts of the financial system. Since the FIs, acting as underwriters, are not exposed to the credit, liquidity, and interest rate risks of traditional banking, they have little incentive to screen and monitor activities of borrowers to whom they originate loans. Thus, FIs' role as specialists in risk measurement and management has been reduced.

Adding to FIs' move away from risk measurement and management was the boom ("bubble") in the housing markets, which began building in 2001, particularly after the terrorist attacks of 9/11. The immediate response by regulators to the terrorist attacks was to create stability in the financial markets by providing liquidity to FIs. For example, the Federal Reserve lowered the short-term interest rate that banks and other financial institutions pay in the federal funds market and even made lender of last resort funds available to nonbank FIs such as investment banks. Perhaps not surprisingly, low interest rates and the increased liquidity provided by the central banks resulted in a rapid expansion in consumer, mortgage, and corporate debt financing. Demand for residential mortgages and credit card debt rose dramatically. As the demand for mortgage debt grew, especially among those who had previously been excluded from participating in the market because of their poor credit ratings, FIs began lowering their credit quality cut-off points. Moreover, to boost their earnings, in the market now popularly known as the "subprime market," banks and other mortgage-supplying institutions often offered relatively low "teaser" rates on adjustable rate mortgages (ARMs), i.e., exceptionally low initial interest rates, but, if market rates rise in the future, substantial increases in rates could occur after the initial rate period expired two or three years later. Under the traditional, originate

and hold, banking model, banks might have been reluctant to so aggressively pursue low credit quality borrowers for fear that the loans would default. However, under the originate to distribute model of banking, asset securitization and loan syndication allowed banks to retain little or no part of the loans, and hence the default risk on loans that they originated. Thus, as long as the borrower did not default within the first months after a loan's issuance and the loans were sold or securitized without recourse back to the bank, the issuing bank could ignore longer term credit risk concerns. The result was a deterioration in credit quality, at the same time as there was a dramatic increase in consumer and corporate leverage.

Eventually, in 2006, housing prices started to fall. At the same time, the Federal Reserve started to raise interest rates as it began to fear inflation. Since many subprime mortgages originated in the 2001–2005 period had adjustable rates, the cost of meeting mortgage commitments rose to unsustainable levels for many low income households. The confluence of falling house prices, rising interest rates, and rising mortgage costs led to a wave of mortgage defaults in the subprime market and foreclosures that only reinforced the downward trend in house prices. The number of subprime mortgages that were more than 60 days behind on their payments was 17.1 percent in June 2007 and more than 20 percent in August 2007. As this happened, the poor quality of the collateral and credit quality underlying subprime mortgage pools became apparent, with default rates far exceeding those apparently anticipated by the rating agencies in setting their initial subprime mortgage securitizations ratings. In 2007, the percentage of subprime mortgage-backed securities delinquent by 90 days or more was 10.09 percent, substantially higher than the 5.37 percent rate in May 2005. The financial crisis began. Appendix 1A to the chapter (located at the book's website, **www.mhhe.com/saunders10e**) provides a detailed discussion of the causes of, major events during, and regulatory and industry changes resulting from the financial crisis

The economy relies on financial institutions to act as specialists in risk measurement and management. The importance of this was demonstrated in the aftermath of the FIs' failure to perform this critical function during the global financial crisis. The result was a worldwide breakdown in credit markets, as well as an enhanced level of equity market volatility. When FIs failed to perform their critical risk measurement and management functions, the result was a crisis of confidence that disrupted financial markets.

Enterprise Risk Management

From its first edition, the major theme of this book has been the measurement and management of FI risks. While FIs have traditionally examined risk measurement and management by functional area (e.g., credit risk or liquidity risk), more recently, they have recognized the value of enterprise risk management. **Enterprise risk management** (ERM) recognizes the importance of prioritizing and managing the full spectrum of risks as an interrelated risk portfolio. The process also seeks to embed risk management as a component in all critical decisions throughout the FI.

enterprise risk management
Recognizes the importance of managing the full spectrum of risks as an interrelated risk portfolio.

ERM came to the forefront for many FIs during and after the financial crisis, when their risk management practices came under intense scrutiny. Many FIs had invested heavily in advanced risk measurement and management systems only to have them fail to detect or control risk exposures that led up to the crisis. These failures resulted in significant examinations of what went wrong with risk management systems and practices. For example, since the financial crisis, global FI regulators, such as the Basel Committee on Banking Supervision, have moved to address risk culture, risk appetite setting, and risk governance more explicitly in regulatory standards. This was not the

Industry **Perspectives**

ENTERPRISE RISK MANAGEMENT—JPMORGAN CHASE

Risk is an inherent part of JPMorgan Chase's business activities. When the Firm extends a consumer or wholesale loan, advises customers on their investment decisions, makes markets in securities, or conducts any number of other services or activities, the Firm takes on some degree of risk. The Firm's overall objective is to manage its businesses, and the associated risks, in a manner that balances serving the interests of its clients, customers, and investors and protects the safety and soundness of the Firm.

The Firm believes that effective risk management requires:

- Acceptance of responsibility, including identification and escalation of risk issues, by all individuals within the Firm;
- Ownership of risk management within each line of business and corporate functions; and
- Firmwide structures for risk governance.

The Firm strives for continual improvement through efforts to enhance controls, ongoing employee training and development, talent retention, and other measures. The Firm follows a disciplined and balanced compensation framework with strong internal governance and independent Board oversight. The impact of risk and control issues are carefully considered in the Firm's performance evaluation and incentive compensation processes.

Firmwide Risk Management is overseen and managed on an enterprise-wide basis. The Firm's approach to risk management involves understanding drivers of risks, risk types, and impacts of risks.

Source: JPMorgan Chase Form 10-Q, September 2018.
https://jpmorganchaseco.gsc-web.com/financial-information/sec-filings?doctype=Quarterly

case prior to the crisis, when emphasis was predominantly placed on risk management processes and systems, believing that this ought to be sufficient. Prior to the financial crisis, FIs largely failed to take into account behavioral biases that play a critical role in senior management decisions which ultimately affect the risks that a company was willing to take or tolerate. Rather, the advancements in risk management had resulted in a highly analytical-focused discipline which largely ignored fundamental drivers of risk taking that are rooted in more subtle behavioral characteristics. Using an ERM framework, decisions include how performance targets are set for staff, how incentive structures are designed, and the stature and resources that are provided to risk management functions within the FI. ERM stresses the importance of building a strong risk culture supported by governance arrangements that are explicitly aligned to a firm's risk appetite. The Industry Perspectives box highlights enterprise risk management as employed by JPMorgan Chase.

FinTech Financial technology, or FinTech, refers to the use of technology to deliver financial solutions in a manner that competes with traditional financial methods. The Financial Stability Board defines FinTech as "Technology-enabled innovation in financial services that could result in new business models, applications, processes, or products with an associated material effect on the provision of financial services." FinTech risk involves the risk that FinTech firms could disrupt business of financial services firms in the form of lost customers and lost revenue. As stated in JP Morgan Chase's 2018 Annual Report, "On the consumer side, we have introduced Chase Pay, the digital equivalent to using a debit or credit card, which allows customers to pay online or in-store with their mobile phone. We also introduced Zelle, a real-time

consumer-to-consumer payments system, which allows customers to easily, safely, and immediately send money to their friends and family. We expect these products to drive lots of customer interactions and make our payments offerings compelling, even as some very smart fintech competitors emerge."

FinTech services such as cryptocurrencies (e.g., bitcoin) and blockchain provide a system that supports the exchange of value between two parties unknown to each other in a swift and effective way, without the need for financial intermediaries. Businesses or individuals can create agreements, make transactions, and build value without relying on banks, rating agencies, and government bodies to verify their identities, establish trust, or perform the critical business logic. By reducing transaction costs among all participants in the economy, FinTech supports models of peer-to-peer mass collaboration that could make many existing organizational forms redundant. Clients may choose to conduct business with other market participants who engage in business or offer products in areas traditional FIs find too speculative or risky. However, investing in FinTech may enable incumbents such as JPMorgan Chase, Citigroup, and Credit Suisse to do more with less, streamline their businesses, and reduce risk in the process. Adoption of new technologies in financial services would require substantial expenditures in order to adapt to evolving industry standards and consumer preferences. For example, in 2017, JPMorgan Chase invested $10.8 billion in technology. As stated in their Annual Report, the Commercial and Investment Bank (CIB) "is an investment bank, but financial technology forms the bank's backbone. As part of JPMorgan Chase, the CIB benefits from being part of a firm that draws on the expertise of nearly 50,000 technologists and a 2017 technology budget that amounted to $9.5 billion. But to underscore the firm's overall commitment, this year's technology budget totals $10.8 billion, with more than $5 billion earmarked for new investments."

Global Trends

In addition to these domestic trends, U.S. FIs must now compete not only with other domestic FIs but increasingly with foreign FIs that provide services (such as payment services and denomination intermediation) comparable to those of U.S. FIs. For example, Table 1–3 lists the 10 largest banks in the world, measured by total assets as of May 2018. Notice that only 2 of the top 10 banks are U.S. banks. Table 1–4 lists foreign versus domestic bank offices' assets held in the United States from 1992 through 2018. Total foreign bank assets over this period increased from $510.9 billion in 1992 to $2,279.8 billion in 2018. This consistently represents over 10 percent (and has been as high as 21.9 percent) of total assets held in the United States.

TABLE 1–3
The 10 Largest Banks in the World (in millions of dollars)

Source: *The Banker*, May 2018. *www.thebanker.com*

	Total Assets
Industrial and Commercial Bank of China (China)	$4,009.3
China Construction Bank (China)	3,400.2
Agricultural Bank of China (China)	3,235.6
Bank of China (China)	2,991.9
Mitsubishi UFJ Financial Group (Japan)	2,784.7
JPMorgan Chase (United States)	2,533.6
HSBC Holdings (United Kingdom)	2,521.8
BNP Paribas (France)	2,357.1
Bank of America (United States)	2,281.2
Credit Agricole (France)	2,117.2

TABLE 1–4 Domestic Versus Foreign Bank Offices' Assets Held in the United States (in billions of dollars)

Source: Federal Reserve Board, "Flow of Fund Accounts," Statistical Releases, various dates. *www.federalreserve.gov*

	1992	1999	2002	2004	2008	2012	2015	2019
Foreign Bank Financial Assets	$510.9	$763.5	$823.0	$664.1	$1,624.5	$1,976.7	$2,105.8	$2,279.8
Domestic Bank Financial Assets	3,824.4	5,664.4	6,979.1	8,371.8	11,639.0	11,747.6	13,854.6	14,784.8

Concept Questions

1. Is the share of bank and thrift assets growing as a proportion of total FI assets in the United States?
2. What are the fastest growing FIs in the United States?
3. What were the causes of the financial crisis?
4. Describe the global challenges facing U.S. FIs in the early 2000s.

Internet Exercise

Go to the website of the Board of Governors of the Federal Reserve, and find the latest information available for foreign bank offices' assets and liabilities held in the United States using the following steps. At www.federalreserve.gov, click on "Data." Click on "Assets and Liabilities of Commercial Banks in the U.S. - H.8." This will download a file to your computer that will contain the most recent information for "Domestically Chartered Commercial Banks" and "Foreign-Related Institutions."

Summary

This chapter described various factors and forces impacting financial institutions and the specialness of the services they provide. These forces have resulted in FIs, which have historically relied on making profits by performing traditional special functions (such as asset transformation and the provision of liquidity services), expanding into selling financial services that interface with direct security market transactions, such as asset management, insurance, and underwriting services. This is not to say that specialized or niche FIs cannot survive but rather that only the most efficient FIs will prosper as the competitive value of a specialized FI charter declines.

The major theme of this book is the measurement and management of FI risks. In particular, although we might categorize or group FIs and label them life insurance companies, banks, finance companies, and so on, in fact, they face risks that are more common than different. Specifically, all the FIs described in this and the next five chapters (1) hold some assets that are potentially subject to default or credit risk and (2) tend to mismatch the maturities of their balance sheets to a greater or lesser extent and are thus exposed to interest rate risk. Moreover, all are exposed to some degree of saver withdrawal or liquidity risk depending on the type of claims sold to liability holders. And most are exposed to some type of underwriting risk, whether through the sale of securities or by issuing various types of credit guarantees on or off the balance sheet. Finally, all are exposed to operating cost risks because the

production of financial services requires the use of real resources and back-office support systems.

In Chapters 7 through 27 of this textbook, we investigate the ways managers of FIs are measuring and managing this inventory of risks to produce the best return-risk trade-off for shareholders in an increasingly competitive and contestable market environment.

Questions and Problems

1. What are risks common to all financial institutions?
2. Explain how economic transactions between household savers of funds and corporate users of funds would occur in a world without financial institutions.
3. Identify and explain three economic disincentives that would dampen the flow of funds between household savers of funds and corporate users of funds in an economic world without financial institutions.
4. Identify and explain the two functions FIs perform that would enable the smooth flow of funds from household savers to corporate users.
5. In what sense are the financial claims of FIs considered *secondary securities*, while the financial claims of commercial corporations are considered *primary securities*? How does the transformation process, or intermediation, reduce the risk, or economic disincentives, to savers?
6. Explain how financial institutions act as delegated monitors. What secondary benefits often accrue to the entire financial system because of this monitoring process?
7. What are five general areas of FI specialness that are caused by providing various services to sectors of the economy?
8. What are agency costs? How do FIs solve the information and related agency costs experienced when household savers invest directly in securities issued by corporations?
9. How do large FIs solve the problem of high information collection costs for lenders, borrowers, and financial markets?
10. How do FIs alleviate the problem of liquidity risk faced by investors who wish to buy securities issued by corporations?
11. How do financial institutions help individual savers diversify their portfolio risks? Which type of financial institution is best able to achieve this goal?
12. How can financial institutions invest in high-risk assets with funding provided by low-risk liabilities from savers?
13. How can individual savers use financial institutions to reduce the transaction costs of investing in financial assets?
14. What is maturity intermediation? What are some of the ways the risks of maturity intermediation are managed by financial institutions?
15. What are five areas of institution-specific FI specialness and which types of institutions are most likely to be the service providers?
16. How do depository institutions such as commercial banks assist in the implementation and transmission of monetary policy?
17. What is meant by credit allocation regulation? What social benefit is this type of regulation intended to provide?
18. Which intermediaries best fulfill the intergenerational wealth transfer function? What is this wealth transfer process?

19. What are two of the most important payment services provided by financial institutions? To what extent do these services efficiently provide benefits to the economy?
20. What is denomination intermediation? How do FIs assist in this process?
21. What is negative externality? In what ways do the existence of negative externalities justify the extra regulatory attention received by financial institutions?
22. If financial markets operated perfectly and costlessly, would there be a need for financial institutions?
23. Why are FIs among the most regulated sectors in the world? When is the net regulatory burden positive?
24. What forms of protection and regulation do the regulators of FIs impose to ensure their safety and soundness?
25. In the transmission of monetary policy, what is the difference between *inside money* and *outside money*? How does the Federal Reserve try to control the amount of inside money? How can this regulatory position create a cost for depository institutions?
26. What are some examples of credit allocation regulation? How can this attempt to create social benefits create costs to a private institution?
27. What is the purpose of the Home Mortgage Disclosure Act? What are the social benefits desired from the legislation? How does the implementation of this legislation create a net regulatory burden on financial institutions?
28. What legislation has been passed specifically to protect investors who use investment banks directly or indirectly to purchase securities? Give some examples of the types of abuses for which protection is provided.
29. How do regulations regarding barriers to entry and the scope of permitted activities affect the *charter value* of financial institutions?
30. What reasons have been given for the growth of investment companies at the expense of "traditional" banks and insurance companies?
31. What events resulted in banks' shift from the traditional banking model of "originate and hold" to a model of "originate and distribute"?
32. How did the boom in the housing market in the early and mid-2000s exacerbate FIs' transition away from their role as specialists in risk measurement and management?

The following questions and problems are based on material in Appendix 1B to the chapter.

33. What are the tools used by the Federal Reserve to implement monetary policy?
34. Suppose the Federal Reserve instructs the Trading Desk to purchase $1 billion of securities. Show the result of this transaction on the balance sheets of the Federal Reserve System and commercial banks.
35. Explain how a decrease in the discount rate affects credit availability and the money supply.
36. What changes did the Fed implement to its discount window lending policy in the early 2000s?
37. Bank Three currently has $600 million in transaction deposits on its balance sheet. The Federal Reserve has currently set the reserve requirement at 10 percent of transaction deposits.
    a. Suppose the Federal Reserve decreases the reserve requirement to 8 percent. Show the balance sheet of Bank Three and the Federal Reserve System just before and after the full effect of the reserve requirement change. Assume

that Bank Three withdraws all excess reserves and gives out loans and that borrowers eventually return all of these funds to Bank Three in the form of transaction deposits.

b. Redo part (a) using a 12 percent reserve requirement.

38. Which of the monetary tools available to the Federal Reserve is most often used? Why?
39. Describe how expansionary activities conducted by the Federal Reserve impact credit availability, the money supply, interest rates, and security prices. Do the same for contractionary activities.

Web Questions

40. Go to the Federal Reserve Board's website at **www.federalreserve.gov**. Find the latest figures for M1 and M2 using the following steps. Click on "Data." Click on "Money Stock Measures." This downloads a file onto your computer that contains the relevant data. By what percentage have these measures of the money supply grown over the past year?
41. Go to the Federal Reserve Board's website at **www.federalreserve.gov**. Find the latest figures for financial assets outstanding at various types of financial institutions using the following steps. Click on "Data." Click on "Financial Accounts of the United States-Z.1." Click on "Release Tables: Download PDF". This downloads a file onto your computer that contains the relevant data. How has the percent of financial assets held by commercial banks changed since that listed in Table 1–2 for 2018?

Appendix 1A: The Financial Crisis: The Failure of Financial Services Institution Specialness

View Appendix 1A at the website for this textbook **(www.mhhe.com/saunders10e).**

Appendix 1B: Monetary Policy Tools

View Appendix 1B at the website for this textbook **(www.mhhe.com/saunders10e).**

Chapter **Two**

See Appendices Online at www.mhhe.com/saunders10e

- Appendix 2A: Financial Statement Analysis Using a Return on Equity (ROE) Framework
- Appendix 2B: Commercial Banks' Financial Statements and Analysis

Financial Services: Depository Institutions

INTRODUCTION

A theme of this book is that the products sold and the risks faced by modern financial institutions are becoming increasingly similar, as are the techniques used to measure and manage those risks. To illustrate this, Tables 2–1A and 2–1B contrast the products sold by the financial services industry in 1950 with those sold in 2019. In 1999, the U.S. Congress passed the Financial Services Modernization Act (FSMA), which repealed regulations that set barriers between commercial banking, insurance, and investment banking. The bill, promoted as the biggest change in the regulation of financial institutions in nearly 70 years, allowed for the creation of "financial services holding companies" that could engage in banking activities, insurance activities,

TABLE 2–1A Products Sold by the U.S. Financial Services Industry, 1950

	Function							
				Lending		Underwriting Issuance of		Insurance and Risk Management Products
Institution	Payment Services	Savings Products	Fiduciary Services	Business	Consumer	Equity	Debt	
Depository institutions	X	X	X	X	X			
Insurance companies		X		*				X
Finance companies				*	X			
Securities firms		X	X			X	X	
Pension funds		X						
Mutual funds		X						

* Minor involvement.

TABLE 2–1B Products Sold by the U.S. Financial Services Industry, 2019

	Function							
				Lending		Underwriting Issuance of		Insurance and Risk Management
Institution	Payment Services	Savings Products	Fiduciary Services	Business	Consumer	Equity	Debt	Products
Depository institutions	X	X	X	X	X	X	X	X
Insurance companies	X	X	X	X	X	X	X	X
Finance companies	X	X	X	X	X	†	†	X
Securities firms	X	X	X	X	X	X	X	X
Pension funds		X	X	X				X
Mutual funds	X	X	X					

† Selective involvement via affiliates.

and securities activities. The bill also allowed large banks to place certian activities, including some securities underwriting, in direct bank subsidiaries. Thus, after nearly 70 years of partial or complete separation between the various functions performed by financial institutions, the FSMA opened the door for the creation of full-service financial institutions in the United States. Legislation enacted as a result of the financial crisis, however, represents a partial reversal of this trend. For example, the "Volcker rule" provision of the Wall Street Reform and Consumer Protection Act prohibits bank holding companies from engaging in proprietary trading and limits their investments in hedge funds, private equity, and related vehicles. Despite these most recent changes, many FIs operate in more than one of the industries discussed in the next five chapters.

Furthermore, during the financial crisis, several nondepository financial institutions (e.g., investment banks Goldman Sachs and Morgan Stanley and finance company GMAC) requested and were allowed to convert to bank holding companies. The change was recognition that their models of finance and investing had become too risky and the FIs needed the cushion of bank deposits that kept some of the bigger commercial banks like JPMorgan Chase relatively safe during the crisis. By becoming bank holding companies, the firms agreed to significantly tighter regulations and much closer supervision by bank examiners from government agencies rather than only the Securities and Exchange Commission. The new charters required the FIs to be subject to more disclosure, hold higher capital reserves, and take less risk. However, the new banks would also have access to the full array of the Federal Reserve lending facilities, something the failed investment bank Lehman Brothers did not have.

In this chapter, we begin by describing three major FI groups–commercial banks, savings institutions, and credit unions–which are also called *depository institutions* (DIs) because a significant proportion of their funding comes from customer deposits. Historically, commercial banks have operated as more diversified institutions, having a large concentration of residential mortgage assets but holding commercial loans and consumer loans as well. Savings institutions have concentrated primarily on residential mortgages. Finally, credit unions have historically focused on consumer loans funded with member deposits. In Chapters 3 through 6, other (nondepository) FIs will described. We focus on four major characteristics of each group: (1) size, structure, and composition of the industry group, (2) balance sheets and recent trends, (3) regulation, and (4) industry performance.

FIGURE 2–1
A Simple Depository Institution Balance Sheet

Depository Institutions

Assets	Liabilities and Equity
Loans	Deposits
Other assets	Other liabilities and equity

TABLE 2–2
Largest Depository Institutions, 2018 (Banks and Savings Institutions Ranked by Total Assets as of 2018, in billions of dollars)

Source: Quarterly reports, 2018.

Company	Banking Assets	Holding Company Assets
1. JPMorgan Chase	$2,194.8	$2,615.2
2. Bank of America	1,797.9	2,338.9
3. Wells Fargo	1,665.1	1,873.0
4. Citigroup	1,415.1	1,925.2
5. U.S. Bancorp	456.0	464.6
6. PNC Financial Services Corp.	368.6	380.3
7. TD Bank	294.3	380.6
8. Capital One	290.5	362.9
9. Bank of New York Mellon	273.1	349.8
10. State Street Corp.	231.0	234.0

Figure 2–1 presents a very simplified product-based balance sheet for depository institutions. Notice that DIs offer products to their customers on both sides of their balance sheets (loans on the asset side and deposits on the liability side). This joint-product nature of the DI business creates special challenges for management as they deal with the many risks facing these institutions. These risks will be discussed later, in Chapters 7 through 27.

Table 2–2 lists the largest U.S. depository institutions in 2018. The ranking is by size of assets devoted to banking services. The table also lists the assets at the holding company level. Many of these large depository institutions (e.g., JPMorgan Chase, Bank of America) operate in other financial service areas (e.g., investment banking and security brokerage) as well. Thus, assets held at the holding company level can be much larger than those just devoted to banking services. Several depository institutions manage assets of over $1 trillion which reflects the dramatic trend toward consolidation and mergers among financial service firms in the 1990s and 2000s. The largest bank is JPMorgan Chase, created from the merger of J.P. Morgan, Chase Manhattan, Bank One, and Washington Mutual; the second largest is Bank of America, created by the merger of NationsBank, BankAmerica, and FleetBoston; and the third largest is Wells Fargo, created from the merger of Wells Fargo and Wachovia.

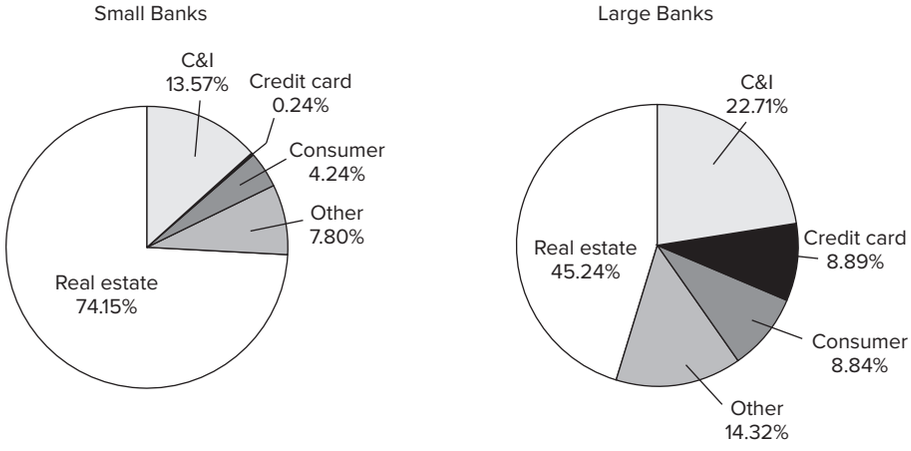
COMMERCIAL BANKS

commercial bank
A bank that accepts deposits and makes consumer, commercial, and real estate loans.

Commercial banks make up the largest group of depository institutions measured by asset size. They perform functions similar to those of savings institutions and credit unions. That is, they accept deposits (liabilities) and make loans (assets). However, they differ in their composition of assets and liabilities, which are much more varied. Commercial bank liabilities usually include several types of nondeposit sources of funds, while their loans are broader in range, including consumer, commercial, and real estate loans. Commercial banking activity is also regulated separately from the activities of savings institutions and credit unions. Within the banking industry, the

FIGURE 2–2
Breakdown of Loan Portfolios

Source: Federal Deposit Insurance Corporation, September 2018. *www.fdic.gov*



Note: Small banks are defined as banks with assets less than $1 billion. Large banks are defined as banks with assets of $1 billion or more.

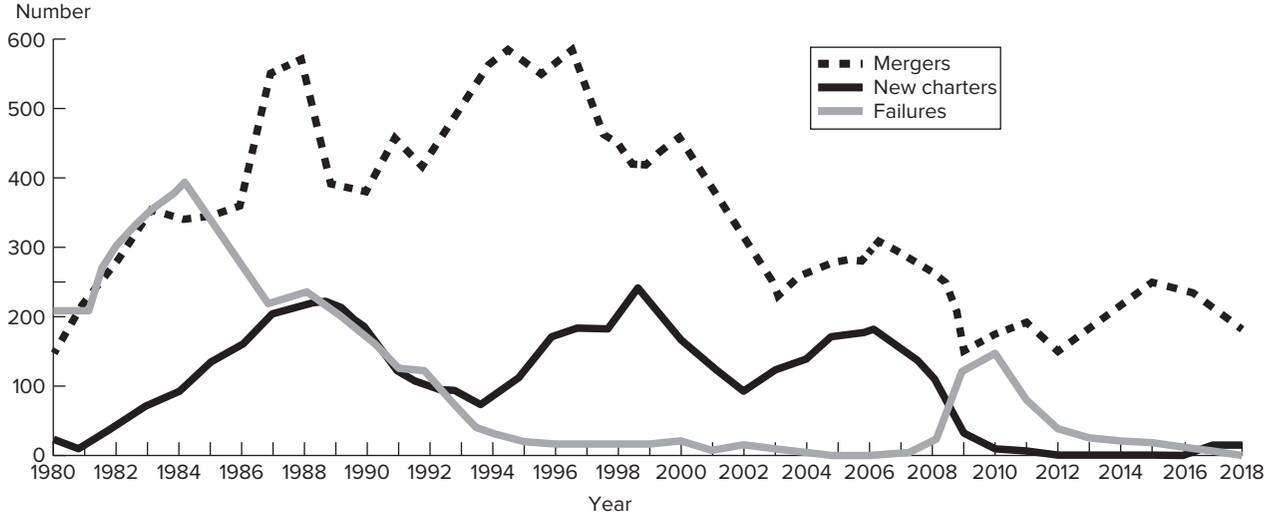
structure and composition of assets and liabilities also vary significantly across banks of different asset sizes. For example, as shown in Figure 2–2, small banks make proportionately fewer commercial and industrial (C&I) loans and more real estate loans than do big banks.

Size, Structure, and Composition of the Industry

In late 2018, the United States had 4,774 commercial banks. Even though this may seem a large number, in fact, the number of banks has been shrinking. For example, in 1985 there were 14,416 banks, and in 1989 there were 12,744. Figure 2–3 illustrates the number of bank mergers, bank failures, and new charters for the period 1980 through 2018. Notice that much of the change in the size, structure, and composition of this industry is the result of mergers and acquisitions. It was not until the 1980s and 1990s that regulators (such as the Federal Reserve

FIGURE 2–3 Structural Changes in the Number of Commercial Banks, 1980–2018

Source: Federal Deposit Insurance Corporation, *Quarterly Banking Profile,* various issues. *www.fdic.gov*



or state banking authorities) allowed banks to merge with other banks across state lines (interstate mergers), and it has only been since 1994 that Congress has passed legislation (the Riegle-Neal Act) easing branching by banks across state lines. Indeed, the number of branches at U.S. banks has increased from 43,293 in 1985 to 88,053 in 2018.

Further, the industry has seen some of the largest mergers and acquisitions ever, such as J.P. Morgan's acquisition of Chase Manhattan (for $33.6 billion) in September 2000, Bank of America's acquisition of FleetBoston Financial (for $49.3 billion) in October 2003, JPMorgan Chase's acquisition of Bank One (for $60.0 billion) in January 2004, and Bank of New York's accuisition of Mellon Financial (for $18.3 billion) in 2007. Thus, while back-office operations are being consolidated, bank customers have an increase in the number of branch locations available to them. Finally, it has only been since 1987 that banks have possessed (limited) powers to underwrite corporate securities. Full authority to enter the investment banking (and insurance) business was received only with the passage of the Financial Services Modernization Act in 1999. Thus, commercial banks may now merge with investment banks (and insurance companies). In subsequent chapters, we discuss the impact that changing regulations as well as technological advances have had on the drop in the number of commercial banks (e.g., technology changes [Chapter 17], regulatory changes [Chapter 22], and competition [Chapter 22]).

A comparison of asset concentration by bank size (see Table 2–3) indicates that the consolidations in banking appear to have reduced the asset share of the smallest banks (under $1 billion) from 36.6 percent in 1984 to 6.2 percent in 2018. These smaller or **community banks**–under $1 billion in asset size–tend to specialize in retail or consumer banking, such as providing residential mortgages and consumer loans and accessing the local deposit base. Clearly, this group of banks is decreasing in both number and importance.

community banks
Banks that specialize in retail or consumer banking.

The relative asset share of the largest banks (more than $1 billion in assets), on the other hand, increased from 63.4 percent in 1984 to 93.8 percent in 2018. The majority of banks in the two largest size classes are often either **regional or superregional banks.** Regional or superregional banks range in size from several billion dollars to several hundred billion dollars in assets. The banks normally are headquartered in larger regional cities and often have offices and branches in locations throughout large portions of the United States. They engage in a more complete array of wholesale commercial banking activities, encompassing consumer and residential lending as well as commercial and

regional or superregional banks
Banks that engage in a complete array of wholesale commercial banking activities.

TABLE 2–3 U.S. Bank Asset Concentration, 1984 versus 2018

Source: *FDIC Quarterly Banking Profile,* fourth quarter 1984 and third quarter 2018. *www.fdic.gov*

	2018				1984			
	Number	Percent of Total	Assets*	Percent of Total	Number	Percent of Total	Assets*	Percent of Total
All FDIC-insured commercial banks	4,774		16,480.4		14,483		$2,508.9	
1. Under $100 million	1,185	24.8%		0.4%	12,044	83.2%	404.2	16.1%
2. $100 million–$1 billion	2,952	61.8	951.4	5.8	2,161	14.9	513.9	20.5
3. $1 billion–$10 billion	513	10.8	1,341.2	8.1	254	1.7	725.9	28.9
4. $10 billion or more	124	2.6	14,117.2	85.7	24	0.2	864.8	34.5

* In billions of dollars.

industrial lending (C&I loans), both regionally and nationally. Although these banks provide lending products to large corporate customers, many of the regional banks have developed sophisticated electronic and branching services to consumer and residential customers. Regional and superregional banks utilize retail deposit bases for funding, but also develop relationships with large corporate customers and international money centers. These banks also access markets for purchased funds–such as the interbank or **federal funds market**–to finance their lending and investment activities. However, some of the very biggest banks often have the separate title **money center banks.** U.S.-based money center banks include Bank of New York Mellon, Deutsche Bank (through its U.S. acquisition of Bankers Trust), Citigroup, JPMorgan Chase, and HSBC Bank USA (formerly Republic NY Corporation).[1,2]

federal funds market
An interbank market for short-term borrowing and lending of bank reserves.

money center banks
Banks that have a heavy reliance on non deposit or borrowed sources of funds.

It is important to note that asset or lending size does not necessarily make a bank a money center bank. Thus, Bank of America Corporation, with $1,797.9 billion in assets in 2018 (the second largest U.S. bank organization), is not a money center bank, while Bank of New York Mellon (with only $273.1 billion in assets) is. What makes a bank a money center bank is partly location[3] and partly its heavy reliance on nondeposit or borrowed sources of funds. In fact, because of its extensive retail branch network,[4] Bank of America tends to be a net supplier of funds on the interbank market (federal funds market). By contrast, money center banks have few retail branches and rely almost entirely on wholesale and borrowed funds as sources of assets or liabilities. Money center banks are also major particitpants in foreign currency markets and are therefore subject to foreign exchange risk (see Chapter 13).

spreads
The difference between lending and deposit rates.

The bigger banks tend to fund themselves in national markets and lend to larger corporations. This means that their **spreads** (i.e., the difference between lending and deposit rates) in the past (the 1990s and early 2000s) often were narrower than those of smaller regional banks, which were more sheltered from competition in highly localized markets. In contrast, small banks historically have benefited from a larger spread between the cost of funds and the rate on assets, each of which is caused by the less-severe competition in the localized markets. In addition, small banks have been able to control credit risk more efficiently and to operate with less overhead expense than large banks. As a result, the largest banks' return on assets (ROA) was below that of smaller banks (see Table 2–4). However, as the barriers to interstate competition and expansion in banking fell in the 1990s and as large banks have focused more on off-balance-sheet activities to generate income (see below), the largest banks' ROAs as well as returns on equity (ROEs) have often outperformed those of the smallest banks, especially those with assets under $100 million (see Table 2–4). However, remember that ROE is defined as net income divided by total equity or ROA times the ratio of assets to equity. Because large banks typically operate with less equity per dollar of assets, net income per dollar of equity, (ROE) is generally larger for this group.

In the late 2000s, the U.S. economy experienced its strongest recession since the Great Depression. Commercial banks' performance deteriorated along with the economy. As mortgage borrowers defaulted on their mortgages, financial institutions that held these "toxic" mortgages and "toxic" credit derivatives (in the form of

[1] Bankers Trust was purchased by Deutsche Bank (a German bank) in 1998. The Bankers Trust name, however, has been retained for U.S. operations. Republic NY Corporation was purchased by HSBC (a British bank) in 1999. Republic NY Bank has been retained for U.S. operations under the name HSBC Bank USA.

[2] These banking organizations are mostly holding companies that own and control the shares of a bank or banks.

[3] A money center bank normally is headquartered in New York or Chicago. These are the traditional national and regional centers for correspondent banking services offered to smaller community banks.

[4] In 2018, Bank of America had more than 4,473 branches nationwide.