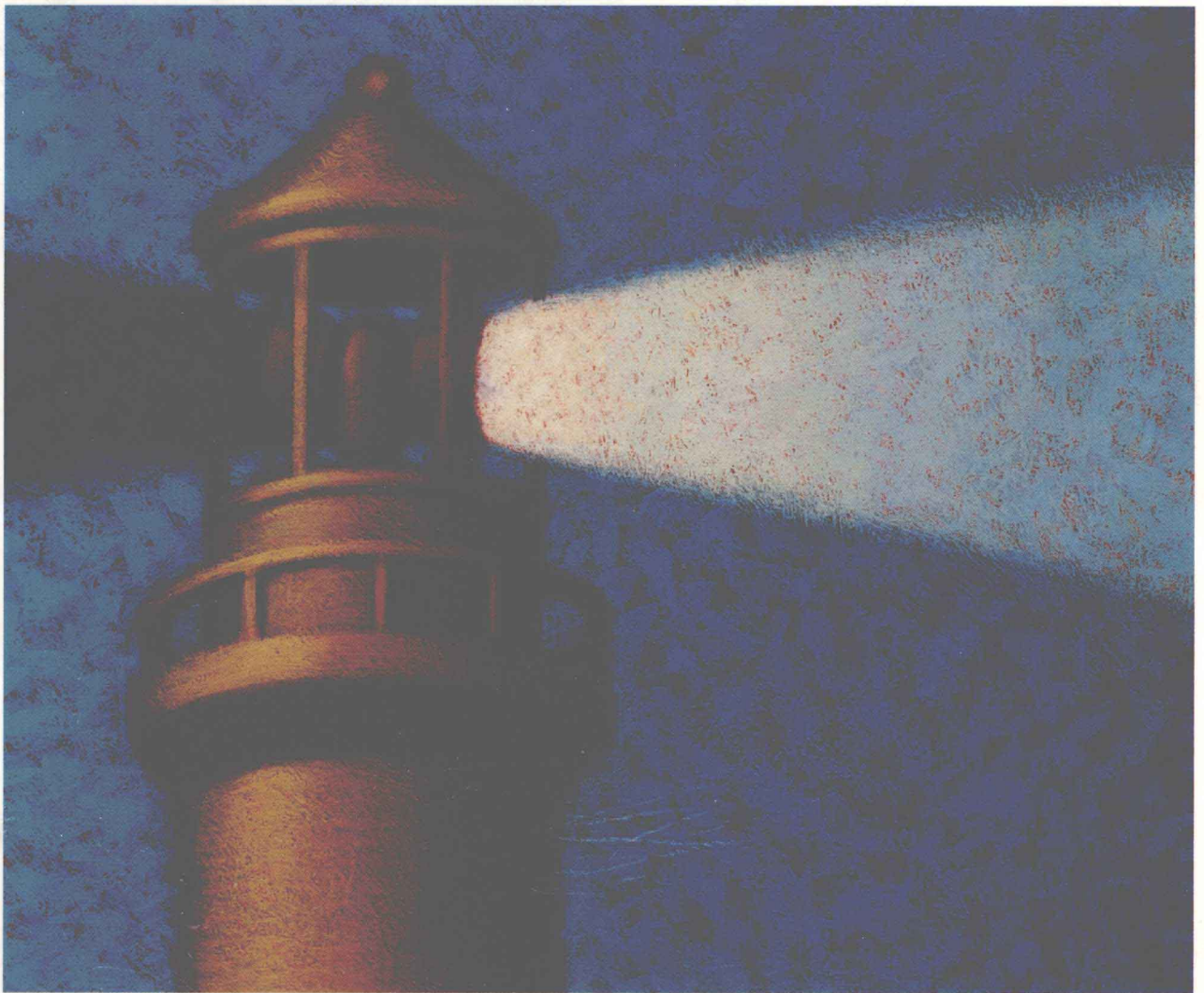


Financial Markets and Institutions

A Modern Perspective



Saunders / Cornett

Financial Markets and Institutions

A Modern Perspective

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To my father, Myer Saunders (1919–1998).

TONY SAUNDERS

To Galen

MARCIA MILLON CORNETT

About the Authors

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Preface

The 1990s was characterized as a period in which financial markets in the United States boomed. The Dow Jones Industrial Average rose from a level of 2,800 in January 1990 to more than 11,000 by the end of the decade; this compared to a move from 100 at its inception in 1906 to 2,800 thirty-four years later. While security values in U.S. financial markets rose dramatically, financial markets in Southeast Asia, South America, and Russia plummeted. For example, on July 2, 1997, the Thai baht fell nearly 50 percent in value relative to the U.S. dollar. Countries such as Russia, Thailand, and South Korea required an international bailout by the International Monetary Fund to prevent a complete collapse of their financial markets and their economies. Nevertheless, Indonesia had to declare a moratorium on some of its debt repayments, while Russia defaulted on payments on its short-term government bonds.

Meanwhile, the financial services industry is approaching a full historical cycle. Originally, the banking industry operated as a full-service industry, performing directly or indirectly all financial services (commercial banking, investment banking, stock investing, insurance provision, 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 (e.g., mutual funds, brokerage funds) that separated the financial service functions even further. Now, at the turn of the century, regulatory barriers via the Financial Services Modernization Act of 1999, technological innovation, and financial innovation have resulted in changes such that a full set of financial services may again be offered by a single financial institution (FI) such as Citigroup. Not only are the boundaries between traditional industry sectors weakening but competition is becoming global in nature, as the Germans, French, and other Europeans enter into U.S. financial service markets, and vice versa.

As the economic and competitive environments change, attention to profit and, more than ever, risk becomes increasingly important. This book offers a unique analysis of the risks faced by investors and savers interacting through both financial institutions and financial markets, as well as strategies that can be adopted for controlling and managing these risks. Special emphasis is also put on new areas of operations in financial markets and institutions, such as asset securitization, off-balance-sheet activities, and globalization of financial services.

While maintaining a risk measurement and management framework, *Financial Markets and Institutions: A Modern Perspective* provides a broader application of this important perspective. This book recognizes that domestic and foreign financial

markets are increasingly connected and that financial intermediaries are evolving towards a single financial services industry. The analytical rigor is mathematically accessible to all levels of students, undergraduate and graduate, and is balanced by a comprehensive discussion of the unique environment within which financial markets and institutions operate. Important practical tools such as how to issue and trade financial securities or how to analyze financial statements and loan applications will arm students with skills necessary to understand and manage financial market and institution risks in this dynamic environment. While descriptive concepts, so important to financial management (financial market securities, regulation, industry trends, industry characteristics, etc.) are included in the book, ample analytical techniques are also included as practical tools to help students understand the operation of modern financial markets and institutions.

Intended Audience

Financial Markets and Institutions: A Modern Perspective is aimed at the first course in financial markets and institutions at both the undergraduate and MBA levels. While topics covered in this book are found in more advanced textbooks on financial markets and institutions, the explanations and illustrations are aimed at those with little or no practical or academic experience beyond the introductory level in financial courses. In most chapters, the main relationships are presented using figures, graphs, and simple examples. The more complicated details and technical problems related to in-chapter discussion are provided in appendixes to the chapters.

Organization

Since our focus is on return and risk and the sources of that return and risk in domestic and foreign financial markets and institutions, this book relates ways in which a modern financial manager, saver, and investor can expand return with a managed level of risk to achieve the best, or most favorable, return-risk outcome.

The book is divided into five major sections. Part One provides an introduction to the text and an overview of financial markets and institutions. Chapter 1 defines and introduces the various domestic and foreign financial markets and describes the special functions of FIs. This chapter also takes an analytical look at how financial markets and institutions benefit today's economy. In Chapter 2, we provide an in-depth look at interest rates. We first review the concept of time value of money. We then look at factors that determine interest rate levels, as well as their past, present, and expected future movements. Chapter 3 then applies these interest rates to security valuation. In Chapter 4, we describe the Federal Reserve System and how monetary policy implemented by the Federal Reserve affects interest rates and, ultimately, the overall economy.

Part Two of the text presents an overview of the various securities markets. We describe each securities market, its participants, the securities traded in each, the trading process, and how changes in interest rates, inflation, and foreign exchange rates impact the FI managers' decisions to hedge risk. These chapters cover the money markets (Chapter 5), bond markets (Chapter 6), mortgage markets (Chapter 7), stock markets (Chapter 8), foreign exchange markets (Chapter 9), and derivative securities markets (Chapter 10).

Part Three of the text summarizes the operations of depository institutions. Chapter 11 describes the key characteristics and recent trends in the commercial banking sector. Chapter 12 does the same for the thrift institution sector. Chapter 13 describes the financial statements of a typical depository institution and the ratios used to analyze those statements. This chapter also analyzes actual financial statements for representative financial institutions. Chapter 14 provides a comprehensive look at the

regulations under which these financial institutions operate and, particularly, at the effect of recent changes in regulation.

Part Four of the text provides an overview describing the key characteristics and regulatory features of the other major sectors of the U.S. financial services industry. We discuss insurance institutions in Chapter 15, securities firms and investment banks in Chapter 16, finance companies in Chapter 17, mutual fund firms in Chapter 18, and pension funds in Chapter 19.

Part Five concludes the text by examining the risks facing a modern FI and FI managers, and the various strategies for managing these risks. In Chapter 20, we preview the risk measurement and management chapters that follow with an overview of the risks facing a modern FI. We divide the chapters on risk measurement and management along two lines: measuring and managing risks on the balance sheet, and managing risks off the balance sheet. In Chapter 21, we begin the on-balance-sheet risk measurement and management section by looking at credit risk on individual loans and bonds and how these risks adversely impact an FI's profits and value. The chapter also discusses the lending process, including loans made to small households and small, medium-sized, and large corporations. Chapter 22 covers liquidity risk in financial institutions. This chapter includes a detailed analysis of ways in which FIs can insulate themselves from liquidity risk, and the key role deposit insurance and other guarantee schemes play in reducing liquidity risk.

In Chapter 23, we investigate the net interest margin as a source of profitability and risk, with a focus on the effects of interest rate risk and the mismatching of asset and liability maturities on FI risk exposure. At the core of FI risk insulation is the size and adequacy of the owner's capital stake, which is also a focus of this chapter.

The management of risk off the balance sheet is examined in Chapter 24. The chapter highlights various new markets and instruments that have emerged to allow FIs to better manage three important types of risk: interest rate risk, foreign exchange risk, and credit risk. These markets and instruments and their strategic use by FIs include forwards and futures, options, and swaps.

Finally, Chapter 25 explores ways of removing credit risk from the loan portfolio through asset sales and securitization.

Anthony Saunders
Marcia Millon Cornett

Walkthrough Main Features

The following special features have been integrated throughout the text to encourage student interaction and to aid them in absorbing the material.

Reserve System, Monetary Policy, and Interest Rates

Chapter Navigator

1. What are the major functions of the Federal Reserve System?
2. What is the structure of the Federal Reserve System?
3. What are the monetary policy tools used by the Federal Reserve?
4. How do monetary policy changes affect key economic variables?
5. How do U.S. monetary policy initiatives affect foreign exchange rates?



Responsibilities of the Federal Reserve System: Chapter Overview

Structure of the Federal Reserve System

- Federal Reserve Banks
- Board of Governors of the Federal Reserve System
- Federal Open Market Committee
- Balance Sheet of the Federal Reserve

Monetary Policy Tools

- Open Market Operations
- The Discount Rate
- Reserve Requirements (Reserve Ratios)

The Federal Reserve, the Money Supply, and Interest Rates

Chapter-Opening Outlines

These outlines offer students a snapshot view of what they can expect to learn from each chapter's discussion.

Chapter Navigators

The chapter navigators list the chapter topics in order, providing numbers that correspond with the section in which they can be found in the chapter.

3 Monetary Policy Tools

In the previous section of this chapter, we referred briefly to tools or instruments that the Federal Reserve uses to implement its monetary policy. These included open market operations, the discount rate, and reserve requirements. Regardless of the tool the Federal Reserve uses to implement monetary policy, the major link by which monetary policy impacts the macroeconomy occurs through the Federal Reserve influencing the market for bank reserves (required and excess reserves held as depository institution reserves balances in accounts at Federal Reserve Banks plus vault cash on hand of commercial banks). Specifically, the Federal Reserve's

7. The minimum daily average reserves that a bank must maintain are computed as a percentage of the daily average net transaction accounts held by the bank over the two-week computation period, called the reserve computation period. Transaction accounts include all deposits on which an account holder may

Bold Key Terms and a Marginal Glossary

The main terms and concepts are emphasized throughout the chapter by the bold key terms and a marginal glossary.

Pertinent Website Addresses

Website addresses are also referenced in the margins throughout each chapter providing additional resources to aid in the learning process.

www.ny.frb.org/

Federal Reserve Board Trading Desk

Unit of the Federal Reserve Bank of New York through which open market operations are conducted.

policy directive

Statement sent to the Federal Reserve Board Trading Desk from the FOMC that specifies the money supply target.

Open Market Operations

When a targeted monetary aggregate (M1, M2, etc.—see definition below) or interest rate level is determined by the FOMC, it is forwarded to the **Federal Reserve Board Trading Desk** at the Federal Reserve Bank of New York (FRBNY) through a statement called the **policy directive**. The manager of the Trading Desk uses the policy directive to instruct traders on the amount of open market purchases or sales to transact. Open market operations are the Federal Reserves' purchases or sales of securities in the U.S. Treasury securities market. This is an over-the-counter market in which traders are linked to each other electronically (see Chapter 5).

Open market operations are particularly important because they are the primary determinant of changes in bank excess reserves in the banking system and thus directly impact the size of the money supply and/or the level of interest rates (e.g., the fed funds rate). When the Federal Reserve purchases securities, it pays for the securities by either writing a check on itself or directly transferring funds (by wire transfer) into the seller's account. Either way, the Fed credits the reserve deposit account of the bank that sells it (the Fed) the securities. This transaction increases the bank's excess reserve levels. When the Fed sells securities, it either collects checks received as payment or

Gold and Foreign Exchange and Treasury Currency: The Federal Reserve holds Treasury gold certificates that are redeemable at the U.S. Treasury for gold. The Fed also holds small amounts of Treasury-issued coinage and foreign-denominated assets to assist in foreign currency transactions or currency swap agreements with the central banks of other nations.

Do You Understand?

1. What are the main functions of Federal Reserve Banks?
2. What are the main responsibilities of the Federal Reserve Board?
3. How does the FOMC implement monetary policy?
4. What are the main assets and liabilities in the Federal Reserve System?

Loans to Domestic Banks: As mentioned earlier, in a liquidity emergency, depository institutions in need of additional funds can borrow at the Federal Reserve's discount window (discussed in detail below). The interest rate or discount rate charged on these loans is often lower than other interest rates in the short-term money markets (see Chapter 5). To prevent excessive borrowing from the discount window, the Fed discourages borrowing unless a bank is in serious liquidity need (see Chapters 14 and 22). As a result, (discount) loans to domestic banks are normally a relatively small portion of the Fed's total assets.⁸

“Do You Understand?” Boxes

These boxes allow students to test themselves on the main concepts within each major chapter section.

In-Chapter Examples

These examples provide numerical demonstrations of the analytical material described in many chapters.

Example 4-1 Purchases of Securities by the Federal Reserve

Suppose the FOMC instructs the FRBNY Trading Desk to purchase \$500 million of Treasury securities. Traders at the FRBNY call primary government securities dealers of major commercial and investment banks (such as Goldman Sachs and Chase)⁹ who provide a list of securities they have available for sale, including the denomination, maturity, and the price on each security. FRBNY traders then seek to purchase the target number of securities (at the desired maturities and lowest possible price) until they have purchased the \$500 million. The FRBNY then notifies its government bond department to receive and pay the sellers for the securities it has purchased. The securities dealer sellers (such as banks) in turn deposit these payments in their accounts held at their local Federal Reserve Bank. As a result of these purchases, the Treasury securities account balance of the Federal Reserve System is increased by \$500 million and the total reserve accounts maintained by these banks and dealers at the Fed is increased by \$500 million. We illustrate these changes to the Federal Reserve's balance sheet in Table 4-6. In addition, there is also an impact on commercial bank balance sheets. Total reserves (assets) of commercial banks will increase by \$500 million due to the purchase of securities by the Fed, and demand deposits (liabilities) of the securities dealers (those who sold the securities) at their banks will increase by \$500 million.¹⁰ We also show the changes to commercial banks' balance sheets in Table 4-6.

Note the Federal Reserve's Treasury securities account balance increased the total

In the News

4-1

Alan Greenspan, U.S. Federal Reserve Chairman, said yesterday he expected “a lot of problems” to emerge in the global financial payments system because of the Year 2000 computer problem. The Fed had already ordered the printing of extra

U.S. Prints Cash to Cope with Demands of Millennium Bomb

is we are going to run into a lot of problems. And as a

for banknotes between July and the end of 1999. In July, the Fed estimated it had \$460 billion in banknotes in circulation with an additional \$153 billion in its vaults, a total of \$613 billion. As part of the Fed's contingency planning, it had ordered increased printing of currency for the

“In the News . . .” Boxes

These boxes demonstrate the application of chapter material to real, current events.

Main Features

End-of-Chapter Problems

At least 20 problems per chapter are written for varied levels of difficulty.

Summary

This chapter described the Federal Reserve System in the United States. The Federal Reserve is the central bank charged with conducting monetary policy, supervising and regulating depository institutions, maintaining the stability of the financial system, and providing specific financial services to the U.S. government, the public, and financial institutions. We reviewed the structure under which the Fed provides these functions, the monetary policy tools it uses, and the impact of monetary policy changes on credit availability, interest rates, money supply, security prices, and foreign exchange rates.

Questions

1. Describe the functions performed by Federal Reserve Banks.
2. Define the discount window and the discount rate.
3. Describe the structure of the Board of Governors of the Federal Reserve System.
4. What are the primary responsibilities of the Federal Reserve Board?
5. What are the primary responsibilities of the Federal Open Market Committee?
6. What are the major liabilities of the Federal Reserve System? Describe each.
7. What are the major assets of the Federal Reserve System? Describe each.
8. What are the tools used by the Federal Reserve to implement monetary policy?
9. 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.
10. Suppose the Federal Reserve instructs the Trading Desk to sell \$850 million of securities. Show the result of this transaction on the balance sheets of the Federal Reserve System and commercial banks.
11. Explain how a decrease in the discount rate affects credit availability and the money supply.
12. Why does the Federal Reserve rarely use the discount rate to implement its monetary policy?
13. What is the difference between an adjustment credit, a seasonal credit, and an extended credit discount window loan?
14. 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. If 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 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.
15. National Bank currently has \$500 million in transaction deposits on its balance sheet. The current reserve requirement is 10 percent, but the Federal Reserve is decreasing this requirement to 8 percent.
 - a. Show the balance sheet of the Federal Reserve and National Bank if National Bank converts all excess reserves to loans, but borrowers return only 50 percent of these funds to National Bank as transaction deposits.
 - b. Show the balance sheet of the Federal Reserve and National Bank if National Bank converts 75 percent of its excess reserves to loans and borrowers return 60 percent of these funds to National Bank as transaction deposits.
16. Which of the monetary tools available to the Federal Reserve is most often used? Why?
17. 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.

Supplements

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Website

The Saunders/Cornett Custom Crafted Website is found at www.mhhe.com/scl.e. In addition to information on the book and its features, the site also includes downloadable PowerPoint slides and sample chapters from both the text and the Study Guide.

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