

MODERN MONEY AND BANKING

Second Edition



Roger LeRoy Miller / Robert W. Pulsinelli

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McGraw-Hill Publishing Company

New York St. Louis San Francisco Auckland Bogotá
Caracas Hamburg Lisbon London Madrid Mexico Milan
Montreal New Delhi Oklahoma City Paris San Juan
São Paulo Singapore Sydney Tokyo Toronto

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publisher.

234567890 HALHAL 89432109

ISBN 0-07-042212-5

This book was set in News Gothic by General Graphic Services, Inc.
The editor was Scott D. Stratford; the production supervisor was Leroy A. Young.
The cover was designed by Amy E. Becker.
New drawings were done by J & R Services, Inc.
Arcata Graphics/Halliday was printer and binder.

Cover Photo Credits

Bank Interior by Jeff Smith (The Image Bank)
World Currency by Murray Alcosser (The Image Bank)
24/Hour Banking by Joe Azzara (The Image Bank)

Library of Congress Cataloging-in-Publication Data

Miller, Roger LeRoy.
Modern money and banking / Roger LeRoy Miller,
Robert W. Pulsinelli.—2d ed.
p. cm.
Includes index.
ISBN 0-07-042212-5
1. Money. 2. Banks and banking. 3. Finance.
I. Pulsinelli, Robert W. II. Title.

HG221.M646 1989
332.1—dc19

88-13403

Preface

As we put the final touches on *Modern Money and Banking*, second edition, this area of economics remains in flux. Major changes that have occurred since the publication of the first edition include:

- 1 The large number of failures among banks and savings and loan institutions (and their relationship to deposit insurance) and, for all practical purposes, the insolvency of the FSLIC
- 2 The introduction of new credit instruments and the dramatic growth of the large-dollar payments system
- 3 The increased instability of our financial markets and the stock market crash of 1987
- 4 The Competitive Banking Equality Act of 1987

These changes have all been incorporated into this new edition, and we have added many other sections in our effort to remain as up to date as possible.

A Flexible Approach and Revised Materials This book continues to blend *theoretical economics* (Chapters 6, 7, 8, 14, and 18 through 29), *institutional economics* (Chapters 3, 5, 9, 13, 15, 16, and 17), and *economic history* (Chapters 1 through 4, 12, and 13). We have kept the book flexible so that instructors who prefer one approach to the others will find enough subject matter to satisfy their wants. We do believe, however, that all three elements are crucial to an understanding of modern money and banking.

We have again attempted to write a textbook that will prove helpful to students rather than impressive to their professors. All theory chapters have been reworked, and the monetary theory chapters have benefited from the explicit integration of the job search model into the analysis.

Three New Chapters Changes in the world of money and banking and in the international aspects of banking have necessitated the addition of three chapters. They are:

Chapter 10: Depository Institution Failures and Deposit Insurance. In this chapter we describe the two financial institution crises of the 1980s and the attendant increase in depository institution failures. We relate such failures to a confluence of events: (a) bad loans to third-world countries, farmers, and energy producers, (b) decreased regulation, and (c) the nature of deposit insurance as it is currently administered.

Chapter 11: Globalization of Financial Markets. Here we examine recent changes in world finance and the large dollar payments mechanism. We explain how the world's economies have become more interdependent, with a resulting increase in world financial instability.

Chapter 28: The Foreign Exchange Market. In this chapter, we give a clear demonstration of how equilibrium rates obtain and how they are set by the forces of supply and demand.

Significant Revisions First-edition chapters have been modified and revised in several important respects:

- 1 Recent innovations in financial markets (Chapter 5) include (a) adjustable rate mortgages, (b) zero coupon bonds, (c) securitization, (d) certificates of deposit with yields tied to the performance of the Standard & Poor's 500 Stock Index, and (e) futures markets.
- 2 The risk structure of interest rates is new to Chapter 6.
- 3 On the basis of recent research findings, a revised and simplified section in Chapter 6 explains the term structure of interest rates.
- 4 Bank management strategies, including the gap-analysis techniques, are presented in Chapter 8. This major revision looks also at the pool-of-funds approach, the conversion-of-funds approach, and the various gap-analysis techniques, including zero-funds gap strategy, positive-funds gap strategy, and negative-funds gap strategy. It is the most up-to-date section on bank management strategies in any book today.
- 5 The Competitive Banking Equality Act of 1987 is now included in Chapter 9, along with an explanation of the Garn–St. Germain Act of 1982. Chapter 9 also has a discussion of super regionals and interstate banking pacts.
- 6 A section on selective controls and moral suasion has been added to Chapter 17.
- 7 There is an improved presentation of how the IS-LM interaction determines aggregate equilibrium. In Chapter 21 five key points help the student understand this interaction.
- 8 Chapter 21 has a new mathematical appendix on IS-LM curves and their interaction.
- 9 A new job search model is presented in Chapter 23 and, by means of a unique pedagogical approach, is related to a short-run and a long-run Phillips curve.
- 10 The Friedman-Phelps model is related to the job search model in Chapter 23, for better integration of the chapter.
- 11 In a new section on Fed policy in Chapter 26, we describe the Fed's most recent disclosure concerning its approach to conducting monetary policy.

Pedagogical Features This text utilizes a number of pedagogical aids to keep the student's interest level high and to provide a well-organized body of thought for study and learning.

Chapter Preview Each chapter has five or six preview questions that serve as learning objectives.

Glossary of Key Terms Every key term is introduced in **boldface** within the text and then defined at the end of each chapter. In addition, an alphabetized glossary is included at the end of the book.

Highlights Most chapters contain one or more interesting but light readings, set off from the rest of the text. These Highlights have been included to maintain student interest in the subject matter and to present relevant applications of money and banking theory. There are more than a dozen new Highlights in this edition, such as “Are Food Stamps Money?” (Chapter 3), “How the Shadow Open-Market Committee Works” (Chapter 17), “Printing Money During Periods of Inflation” (Chapter 22), and “Are U.S. Trade Deficits Too Large?” (Chapter 29).

Current Controversies Near the end of most chapters there is a “current controversy” feature, set off from the rest of the text. Each was designed to generate student and instructor interest and to help the student understand that even the experts often disagree about appropriate policy in the money and banking area. Among the dozen new Current Controversies are “Should the Discounting Tool Be Eliminated?” (Chapter 16), “Should the Government Introduce Capital Budgeting?” (Chapter 25), and “Is the United States the World's Largest Debtor Nation?” (Chapter 29).

Problems Sets of problems at the end of most chapters require specific calculations, thereby giving the student an applications-oriented view of the theory presented. The answers appear at the back of the text. Over forty new problems have been added to this edition.

Chapter Summaries A point-by-point summary at the end of each chapter can be used for reinforcement of what was just learned and as a checklist in studying for midterms and finals.

Selected References Each chapter concludes with many appropriate selected references that a student may consult for additional information about the chapter materials.

A Complete Teaching–Learning Package This text forms part of a complete teaching-learning package which includes a Student Guide, a Test Bank, and an Instructor's Manual.

The Student Guide The Student Guide to be used with *Modern Money and Banking*, second edition, was written by Donald J. Schilling, Associate Professor of Economics at the University of Missouri–Columbia. Each chapter in the guide starts with a précis, a checklist of learning objectives, and an outline of key concepts relating to each chapter in the text. The following self-test material is made up of complete questions, problems to be worked out, true-false and multiple-choice questions and, for those who prefer them, a section of short essay questions. Answers are provided in the back of the guide.

The Test Bank The Test Bank was prepared by Richard Cantrell, Associate Professor of Economics at Western Kentucky University.

The Instructor's Manual The Instructor's Manual was written by Paul Altieri, Professor of Economics at Central Connecticut State University. Each chapter includes:

- 1 A one- or two-paragraph introduction that places the chapter in perspective
- 2 Three to five suggested class discussion topics
- 3 Answers to the Chapter Preview questions that begin each text chapter
- 4 At least 15 multiple-choice questions with answers

Acknowledgments We wish to thank the following individuals for their critical and constructive comments, ultimately utilized through the various (and numerous) drafts of the manuscript: Larry Belcher, University of North Carolina–Charlotte; John Connolly, University of California–Irvine; Donald Dutkowsky, Syracuse University; Eleanor Fapohunda, SUNY at Farmingdale; William Field, Nicholls State University; Edward R. Kittrell, Northern Illinois University; John T. Lee, Middle Tennessee State University; Gary Maggs, St. John Fisher College; V. T. Matthews, Seton Hall University; Donald Schilling, University of Missouri; Sol Smith, Southern Connecticut State University; and John Wassom, Western Kentucky University.

As always, any remaining errors in the book are solely our responsibility. We welcome comments from all users of this text, for it is by incorporating such suggestions that we can make it even better in future editions.

Roger LeRoy Miller

Robert W. Pulsinelli

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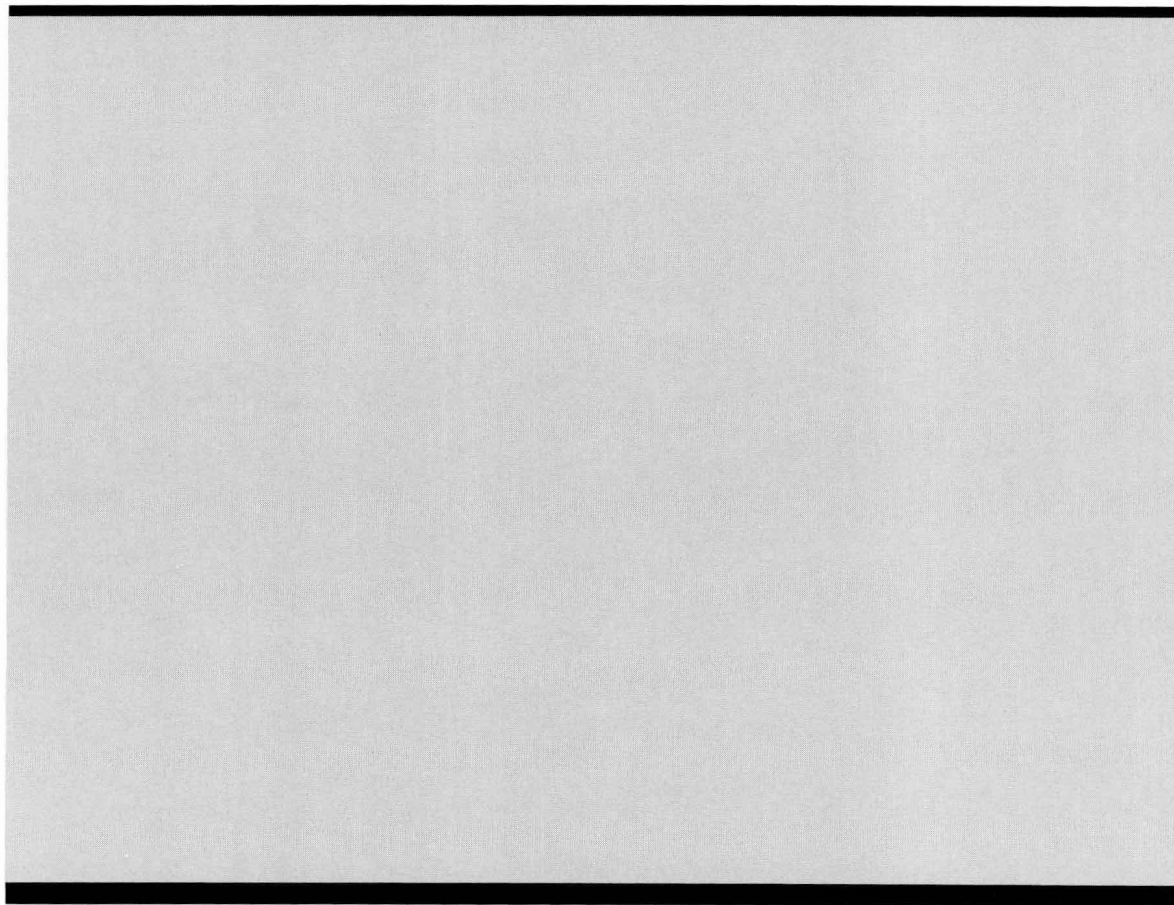
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UNIT

ONE

INTRODUCTION



CHAPTER

1

A Revolution in Money and Banking

CHAPTER PREVIEW

- 1 Why can the banking industry before 1970 be characterized as a governmentally regulated cartel?
- 2 What combination of changes caused a revolution in the banking industry?
- 3 Why did the banking industry cartel break down?
- 4 How have high interest rate levels and increased interest rate variability harmed thrift institutions?
- 5 What are some recent examples of deregulation?
- 6 What are some current issues resulting from the revolution in money and banking?

An old Chinese curse says: "May you live during interesting times." Be it a curse or a blessing, this is an extremely "interesting time" to be studying the U.S. banking system. By the late 1960s, this system had evolved into a cartel-like structure overseen by governmental and quasi-governmental regulatory agencies. It was characterized by a large amount of market segmentation, price fixing, and entry restrictions. During the 1970s, however, a combination of changing economic conditions and changing technology made it unprofitable for some cartel members to remain in the cartel—at least under the old rules. What had previously seemed like the protective bonds of regulation now appeared to be shackles, and, as a consequence, there was growing political pressure to deregulate.

A revolution in technology had made it unfeasible to maintain the old division of banking services and the former geographic divisions of interests. Improvements in technology had created a situation in which *each* institution could cheaply provide *all* services. Indeed, new technology may eventually prove to be so revolutionary that the distinctions among financial institutions and between financial and nonfinancial corporations—already somewhat blurred—may entirely disappear. The technological revolution has even changed the form of money itself—which makes it a revolution in money *and* banking.

It is not yet clear how the banking system will evolve in the future. A certain amount of deregulation of the banking industry has occurred already, and there is growing competition from new—and unregulated—types of financial institutions, such as money market mutual funds. If this trend continues, will it mean financial instability during the transition from the old regulatory system to the creation of a new one? And, if so, what might the consequences be? *Are the services provided by the financial industry so distinct and special that stability should be assured, relative to other industries?* These weighty issues will be considered later in this book. Our task in this chapter will be to provide a framework for analyzing our evolving financial structure and to provide an overview for the remainder of the text. Don't be unduly concerned with mastering this chapter on a first reading. Rather, if you "lose the forest for the trees" when reading later sections, you can return to Chapter 1 for an overall perspective.

In order to understand the current revolution in the banking and financial industry, it is important to look first at (1) the original goals of the regulatory agencies, (2) the cartel arrangement, (3) how technological changes and changes in the economic environment have upset the cartel, (4) recent regulatory changes, and (5) the problems that have been posed as a result of the banking revolution. We consider each of these factors in turn.

GOALS OF THE REGULATORY AGENCIES

Traditionally, the U.S. banking industry has been regulated by state and federal governments, and by specific agencies of these governments. Chapter 9 is devoted to a fuller discussion of the regulation of depository (banking) institutions. In the past, the main purposes of regulation seem to have been:

- 1 To assure a stable financial system; especially to safeguard depositors' money.
- 2 To contribute to the achievement of national economic goals *by controlling the money supply*. Such national goals include price stability, high employment rates, economic growth, and a payments equilibrium in our international transactions. Chapters 4, 15,

16, and 17 indicate how regulators can change the supply of money by transacting with financial intermediaries; Chapter 2, 21, 22, and 29 show that changes in the money supply can affect the price level, the rate of employment, the national output rate, and the balance of payments. Chapters 2 and 3 deal with money, and Chapters 2, 7, and 8 deal with banking.

- 3 To promote efficiency in the financial intermediation process. Financial institutions, such as commercial banks, savings and loan associations, mutual savings banks, and credit unions (financial institutions are discussed in Chapter 5) typically borrow money (accept deposits which become liabilities to the financial institution) and relend this money (acquire assets in the form of IOUs from borrowers, government bonds, and various other credit instruments—also discussed in Chapter 5). If the interest rate they pay to ultimate lenders (from whom they borrow these funds) is less than the rate they can charge to ultimate borrowers (who use the funds to buy consumer or investment goods), financial institutions can earn profits. The process of providing the service of connecting ultimate lenders to ultimate borrowers is referred to as “financial intermediation” and is discussed in Chapter 4. This process is of obvious importance. It (a) allows certain households to consume goods sooner than otherwise would have been possible, (b) allows those who can see a profitable investment opportunity to make an investment without having to save personally, and (c) promotes economic growth and high employment by facilitating the saving-investment process. Regulators, therefore, want the financial intermediation function played by depository institutions to be carried out efficiently. As Chapters 9 and 10 show, there is a trade-off between this goal and the first goal: assuring a stable financial system.
- 4 To provide low-cost financing for home buyers, in the form of low interest rates on house mortgages.

THE CARTEL ARRANGEMENT

Having these purposes in mind, the regulators, with the consent of the financial institutions (the regulatees), oversaw the financial system that evolved through time. By the late 1960s the following arrangement existed.

Market Segmentation Market segmentation (separation) existed to restrict “ruinous competition” and to encourage low-cost home financing. Specific types of depository institutions were encouraged to provide specific types of financial services and were discouraged or prohibited from providing others. For example, commercial banks were allowed to accept deposits (from households or businesses) upon which checks could be written, but the “thrift institutions” (savings and loan associations and mutual savings banks) and credit unions were not. Thrifts and credit unions were permitted to accept only saving deposits (deposits without a maturity date) and time deposits (deposits with a maturity date), *upon which checks could not be written*.¹

¹Commercial banks were also permitted to accept such deposits. In general, commercial banks were permitted to acquire a greater variety of both assets and liabilities than were other financial institutions.

Market segmentation also existed with respect to the types of *assets* that could be acquired by the different types of financial institutions. In general, the thrift institutions were encouraged to specialize in housing loans; commercial banks were expected to specialize in business and consumer loans; and credit unions were to specialize in consumer loans to their members.² Further market segmentation existed because thrift institutions were expected to make housing loans *locally*.

Price Fixing The regulations also fixed “prices”—or interest rates. Commercial banks were disallowed from paying interest on checking account deposits. The rate that thrift institutions could pay on savings and time deposits was also fixed—at a rate slightly higher than commercial banks could pay, and slightly below that which credit unions could pay. Allegedly, such price fixing was instituted to assure financial stability (interest rate competition might induce financial institutions to seek out “riskier” loans, or other credit instruments, to offset higher borrowing costs) and low-cost financing for home purchasers (thrift institutions were given a competitive advantage over commercial banks in attracting savings deposits; they were assured a regulated, relatively low cost for funds).

Also, price fixing existed with respect to the rates that financial institutions could *charge* ultimate borrowers. Interest rate ceilings—otherwise known as usury laws—existed in most states.

Restricted Entry³ The territorial prerogatives of specific financial institutions were protected. One was not allowed to enter the financial institution business at will; state or federal licenses or “charters” were required, and the burden of demonstrating the “need” for certain financial institutions was placed on the would-be entrant. Moreover, specific financial institutions were often forced to operate under state laws that permitted each bank to have only one geographic location. Traditionally, interstate banks were prohibited; under restricted entry, a successful bank was not allowed to expand into other states.

In short, a governmentally regulated banking cartel had emerged, complete with segmented markets, price fixing, and entry restrictions. Such an arrangement worked reasonably well, and for a fairly long time. The banking system was reasonably stable, and financial institutions were rewarded with profitable, segmented markets for specialized services. Of course, market efficiency suffered—as it often does when competition is disallowed. An overinvestment in housing resulted; banking services were overpriced; the spread between the rate that depository institutions paid for deposits and the rate that they charged was certainly greater than it would have been under a competitive system; and financial innovations were stifled. It is difficult to determine if the trade-off between increased financial market security and decreased financial market efficiency was, on balance, beneficial. (As we shall see, this trade-off again looms large as recent deregulation has increased the efficiency of financial markets—at the expense of decreased security.)

²Furthermore, thrift institutions were regulated in the following ways: adjustable mortgage-payment schedules (with respect to monthly payments) were prohibited until April 1981, and ceilings were placed on the ratio of the size of the loan to the value of the house.

³Chapter 9 includes a more complete discussion of this topic.

THE WINDS OF CHANGE

In the late 1960s and the 1970s, technological changes⁴ and changes in economic conditions⁵ revolutionized the banking industry and changed the form of money.

Technological Changes The inventions of the automatic teller machine (ATM) and computer storage and electronic transfer-of-information systems have undermined the cartel's market-segmentation scheme. They have created a situation under which (1) it has become economical for *any* financial institution to provide *packages* of financial services such as checking accounts, savings accounts, check clearing, customer bill paying, purchases of life insurance, and so on; and (2) the costs of financial transactions have been driven down dramatically. One study indicates that between the mid-1960s and 1980, computer processing costs fell at a rate of 25 percent per year, and communication costs fell at an annual rate of 11 percent.⁶ As a consequence of such changes, households and businesses have been able to reduce the amount of cash balances held in non-interest-earning accounts—or in accounts subject to interest rate ceilings. Moreover, these technological changes have made it possible for non-commercial-bank financial institutions to offer financial services (such as check-writing privileges) that previously were the exclusive domain of commercial banks. When these new services are combined with *other* financial services, which the cartel arrangement disallowed commercial banks from offering, nonbank financial institutions now appear to have a competitive advantage over commercial banks.

Changes in the cost structure of financial institutions have also made it feasible to broaden the geographic area over which existing firms may profitably operate; distances between financial transactions have become less important. The result has been that electronic technology has shifted the focus of financial institutions from the provision of specific services for local clients to the offering of a package of services for a national (and even international) clientele. Moreover, these innovations have made it feasible for previously nonfinancial institutions, such as stock brokerage houses and retail stores, to enter the financial services arena.

The electronic transfer-of-information systems also have helped to change the form of money (the changing definition of money is discussed in Chapter 3). Money is usually thought of as that asset which is used to make transactions. Coins and paper currency are clearly money; they are generally accepted as payment for goods and services. Checking deposit accounts, too, are money; people generally accept checks written on such accounts in

⁴Edward J. Kane, "Policy Implications of Structural Change in Financial Markets," *American Economic Review*, Papers and Proceedings of the 95th Annual Meeting of the American Economic Association, vol. 73, no. 2 (May 1983), pp. 96–100. See also Alfred Broaddus, "Financial Innovation in the United States—Background, Current Status, and Prospects," *Economic Review*, Federal Reserve Bank of Richmond, January–February 1985, pp. 2–22.

⁵See Jan G. Loeyes, "Deregulation: A New Future for Thrifts," *Business Review*, Federal Reserve Bank of Philadelphia, January–February 1983, pp. 15–26, for a very readable account.

⁶George Kaufman, Larry Mote, and Harvey Rosenblum, "Implications of Deregulation for Product Lines and Geographical Markets of Financial Institutions," *Journal of Bank Research*, vol. 14 (Spring 1983), p. 9.

exchange for goods and services. Previously, savings accounts were *not* counted as money; in order to spend savings, you had to withdraw them from your account (legally, the thrift institution is not required to honor your request immediately) and convert this asset form into coins, currency, or checking account deposits. Electronic transfer systems, however, have made it possible for funds to be shifted into and out of savings and/or checking accounts at will. Depositors can earn interest on “savings accounts,” and when they are overdrawn on their checking accounts, the electric transfer system automatically covers those checks with funds transferred from the savings account. In short, savings (and other) account deposits can *also* be considered money.

Changes in the Economic Environment In the late 1960s and throughout the 1970s the rate and variability (fluctuation) of inflation increased, and therefore the level and variability of interest rates increased. In turn the *combination* of certain regulated interest rates and an increased level and variability of other (free) interest rates have placed thrift institutions in a vulnerable position. The combined net worth of thrift institutions fell from \$44.7 billion in December 1980 to \$33.6 billion in August 1982.⁷ From 1980 to 1983 approximately 472 savings and loans failed. Currently the thrift industry is still troubled. As of 1988, more than one-fifth of the nation’s 3,200 savings and loans institutions were either insolvent or unprofitable—and losing almost \$10 million daily.

Why has the combination of regulatory ceilings on some interest rates and the changing economic environment of higher market interest rate levels and variability created problems for thrift institutions and compromised the cartel arrangement? Recall that thrift institutions were mainly in the business of accepting savings and time deposits and of using those funds to acquire mortgages from homeowners. Because these mortgages were nonadjustable with respect to interest rates and with respect to monthly payments (until April 1981; see footnote 2), thrift institutions were locked into fixed-rate earnings. This system worked well when interest rates were low and didn’t vary, and when long-term interest rates were higher than short-term rates. The spread between what thrift institutions paid to acquire short-term funds and what they charged for long-term mortgage loans was sufficiently high to assure profitability. However, after 1966 short-term interest rates occasionally exceeded long-term rates. Thrift institutions found that their costs were rising while their earnings were fixed—and profits turned to losses. Moreover, they found it difficult to acquire new funds or maintain old deposits as lenders withdrew their funds and bought credit instruments directly or placed their savings in money market mutual funds.⁸ (This depositor behavior, referred to as “financial disintermediation,” is discussed in Chapter 9). Thus, when higher market interest rates surpassed regulated ceiling rates, thrift institutions lost deposits. Several deregulation measures permitted the thrift institutions to offer several types of deposits at competitive interest rates, but the thrifts were still locked into long-term home mortgage earnings. When unexpected inflation drove interest rates up in 1979, this led to increased costs for thrift institutions, while their earnings remained relatively fixed.

When interest rates fell, symmetry was absent. That is, when interest rates fell, homeowners had the option to *refinance* their loans. Because homeowners could refinance when interest rates fell, but thrift institutions were not allowed to adjust interest rates upward on

⁷Loeys, *op. cit.*, p. 16.

⁸Discussed in Chap. 3.