

Charles D. Cathcart

Money — Credit —  
and  
Economic Activity

# Money, Credit, and Economic Activity

**CHARLES D. CATHCART, Ph.D.**

Vice President  
Citibank, N.A.

**RICHARD D. IRWIN, INC.**

Homewood, Illinois 60430

Irwin-Dorsey Limited  
Georgetown, Ontario  
L7G 4B3

1982



© RICHARD D. IRWIN, INC., 1982

*All rights reserved.* No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

ISBN 0-256-02491-X

Library of Congress Catalog Card No. 81-82215

*Printed in the United States of America*

1 2 3 4 5 6 7 8 9 0 H 9 8 7 6 5 4 3 2

This book was written primarily for the beginning college course on money and banking. It is expected that students will have completed one or two semesters in the principles of economics. But, recognizing that the backgrounds of students will be varied and that some time may have elapsed since their introductory course work, I have provided review materials in key places and a glossary at the end of the book. Mathematical equations in the text are restricted to elementary algebra and are always accompanied by verbal descriptions. Other student aids include cross references between chapters, problems and suggested readings at the ends of chapters, and extensive applications of concepts to historical and current events. Many applications and supplementary readings in the book are drawn from *The Wall Street Journal*. I have found the *Journal* to be extremely valuable for student parallel readings during a course, so I have provided a student's guide to *The Wall Street Journal* in an appendix at the end of the text.

The content of this text is distinguished from the standard text in several ways. First, it devotes several chapters to more detailed analysis and description of the credit markets, including specific yield calculations and major credit market instruments. Instructors

## Preface

teaching business majors may find this particularly valuable material, and it may make the text a suitable addition to a capital markets course. At the same time, instructors who wish to concentrate on topics in monetary theory and policy can skip this material (Chapters 4 through 7) without interrupting the flow of the book.

A second area receiving more exhaustive treatment is the analysis of alternative monetary systems and the supply of money—important material for courses emphasizing money, particularly in view of the recent revival of interest in the gold standard. For courses where these topics are less important, Chapters 9 through 12 can be omitted. It should be noted that the text is up-to-date on important changes in 1979 and 1980, including the Federal Reserve's shift to a reserve aggregates strategy in October 1979 and the Depository Institutions Deregulation and Monetary Control Act of 1980.

Other distinguishing features are an early chapter presenting a simplified supply-and-demand-for-money analysis (Chapter 3); an earlier-than-usual placement of a chapter on international finance (Chapter 8); and the incorporation of a chapter on aggregate supply (Chapter 18) within the standard material on the Keynesian model.

This book was written over a span of seven years which bridged academic and business occupations for the author. During the first three years, I was a member of the faculty at Pennsylvania State University, and during the past four years I have worked principally as a business economist and financial forecaster in New York City. In the course of drafting and redrafting chapters, I have benefited from the suggestions of many students, colleagues, reviewers, and friends. Two students, Jeffrey Sanderson and Toby Kimura, read the complete text and provided detailed comments of great value. Among colleagues and friends who read the text or parts of it, I am particularly indebted to Frederick Meltzer, Bluford Putnam, Sykes Wilford, James Rodgers, Lucy Edwards, and Paul Brody. Reviewers included Edward Day, Stephen Miller, David Schutte, Anthony Santomero, William Wilbur, and Robert McLeod. My beloved wife, Evelyn, was an important contributor as an editor, glossary and index compiler, and, above all, chief source of encouragement despite the severe encroachment of the project on family time. The two principal typists of the final draft, Carla Kanatake and Manny Lopez, also deserve thanks.

My intellectual debts are many, but Leland Yeager was a most important mentor, both as an exemplary teacher and as a monetary theorist. None of the foregoing credits, of course, in any way absolves me from responsibility for any errors or deficiencies which remain.

Charles D. Cathcart

# Contents

---

## PART ONE • INTRODUCTION TO MONEY

### 1. Introduction 2

The great depression and the bank holiday of 1933. INTRODUCTION TO ARTICLE. Saving Plan: Bill to Aid Sick S&Ls Could Eventually Lead to Interstate Banking. Conflicting views of the role of money and credit. Benefits of the financial system. Organization of this book.  
APPENDIX: GNP, THE PRICE LEVEL, REAL INCOME, POTENTIAL GNP, AND THE BUSINESS CYCLE

### 2. Some key concepts and facts about money 20

The functions of money in the economy. INTRODUCTION TO ARTICLE. The Economic Organization of a P.O.W. Camp. Conceptual definitions and empirical measures of the money supply. INTRODUCTION TO ARTICLE. The Many Faces of Money. The role of the federal reserve in the money-supply process.

### 3. Supply and demand analysis of money: A preview and some applications 32

The supply and demand model: Barest essentials and X-rated movies. INTRODUCTION TO ARTICLE. Last Tango in Myrtle Beach: Or How a State Tried to Tax its Way to Virtue. Supply and demand analysis of money: *The demand variables. The rest of the model. Money and inflation. Money and real income. Money and interest rates.* INTRODUCTION TO ARTICLE. The Great German Inflation: Remembering a Nightmare. The timing of price level, income, and interest-rate responses. INTRODUCTION TO ARTICLE. Forecasting the End of Double-Digit Inflation. A comparison between money and AT&T common stock.

---

## PART TWO • ANALYSIS OF CREDIT

### 4. Credit and finance: Some definitions, concepts, and uses 70

External finance and credit: *Two types of contracts. Debt instruments. Equity finance.* Surplus and deficit entities and financial intermediaries: *Types of financial intermediaries and their role in the flow of funds to deficit units. Sector relationships. The functions of external finance: Functions for households. Functions for nonfinancial firms. Functions for financial intermediaries. Governments. The functions for the Treasury. The Federal Reserve. The basic functions of the Federal Reserve's financial operations. Free government finance through Fed operations. Government off-budget and sponsored financing agencies. The functions for state and local governments.* INTRODUCTION TO ARTICLE. New York City: The Pros and Cons of Default.  
APPENDIX: ACCOUNTING TOOLS AND WEALTH CONCEPTS

### 5. The credit market: An aggregate analysis 104

The supply and demand for credit: *The demand for new credit. The supply of new credit. The equilibrium condition.* Major factors affecting the level of interest rates: *The liquidity effect. The income effect. The Fisher effect. The crowding-out effect.* INTRODUCTION TO ARTICLE. Speaking of Business.

### 6. Conceptual and institutional features of the markets for large borrowings 120

Two conventional types of credit arrangements and their return calculations: *The discount-rate arrangement. The interest-to-follow arrangement.* The price/yield relationship and the maturity of the instrument. The instruments and markets for large borrowings: *Short-term credit instruments and markets. The long-term market.* INTRODUCTION TO ARTICLE. The Trader: Treasury-bond dealer finds job more hectic as the market gyrates.

### 7. Liquidity, interest-rate spreads, and credit availability 144

The dimensions of liquidity: *Asset liquidity.* INTRODUCTION TO ARTICLE. Unexpected blow: Plunging Bond Prices Bring Added Prob-

lems to Securities Industry: *Entity liquidity. Aggregate liquidity. The role of financial intermediaries as providers of liquidity: The nature of a liquidity crisis.* INTRODUCTION TO ARTICLE. The Worldwide Liquidity Shortage. INTRODUCTION TO ARTICLE. The Recovery Produces a Flood of Liquidity. Interest-rate spreads: *Theories of the term structure of interest rates. Method of yield calculation. Taxability. Risk of default.* INTRODUCTION TO ARTICLE. The Rating Game: Credit-Grading Firms Wield Greater Power in Public Debt Market. *Marketability. Maturity. Seasoning.* INTRODUCTION TO ARTICLE. A Scramble for Borrowers. Banks Change Their Bond Mix: *Interest rate ceilings. Credit Availability: The theory. Objections.*

## **8. International finance 183**

The market between monies and the foreign-exchange value of money: *A fictitious example.* INTRODUCTION TO ARTICLE. Britain's Currency Smugglers. The foreign-exchange market and the balance of payments: *The balance of payments. Sources of the demand for dollars: Export receipts: Preliminary matters. Export demand factors. Sources of the demand for dollars: Foreign investment in the United States. Sources of the supply of dollars: Payments for imports. Sources of the supply of dollars: U.S. investment abroad.* INTRODUCTION TO ARTICLE. Japan Car Firms Plan to Increase Their U.S. Prices. The major determinants of the U.S.-dollar exchange rate: *Purchasing-power-parity pressure. International business cycles. Pressure toward adjusted interest-rate parity. The effects of monetary policy via interest rates and expected exchange-rate changes. Official reserve transactions. Intervention and exchange rates from a global perspective.* Institutional features of the international financial markets: *The forward exchange market. The Eurocurrency market. The International Monetary Fund.* Fixed versus flexible exchange rates: *How fixed rates are meant to function. The arguments for flexible rates. Recent experience.* INTRODUCTION TO ARTICLES. Mexican Peso Declines as Much as 20 Percent Against Dollar Following Float Decision. Sweden to Cut Krona's Value 6 Percent Today: Denmark, Norway Post 3 Percent Devaluations.

---

## **PART THREE • ANALYSIS OF MONEY AND MONETARY SYSTEMS**

### **9. Further conceptual background for money supply and demand analysis 226**

Physical forms and operational qualities of money: *The operational qualities of money.* Four conditions conducive to acceptance of a money. Key types of money classified by conditions supporting acceptance and conditions of supply. INTRODUCTION TO ARTICLE: The Stone Money of the Isle of Yap. Basic monetary systems and monetary standards: *The basic systems. Monetary standards.*

### **10. Primary and secondary commodity-money systems 236**

The market for a money commodity: *A fictitious example.* The market for a commodity money. International effects with a gold standard.



Multiple-commodity monies and Gresham's Law. INTRODUCTION TO ARTICLE. The Economic Organization of a P.O.W. Camp. The evolution of early debt money and banks of issue. Issue banks' reserve decisions and the supply of debt money: *Determinants of the reserve ratio*. Money supply analysis using the monetary base and the money-stock multiplier: *Definition of the monetary base. The currency ratio. The multiplier in terms of ratios. Influences on the money-stock multiplier. Influences on the monetary base. The complete model*. Determinants of the monetary base with government debt money. The natural behavior of the money supply during the business cycle in a secondary commodity-money system.

## **11. Fiat-money systems and central-bank operations 272**

The evolution of fiat money: *Debasement of coins and seigniorage*. The supply of money in a primary fiat-money system. *The revenue objective and the supply of money. The stabilization objective and the supply of money*. The secondary fiat-money system and central banking. The general objectives of government authorities in secondary fiat-money systems. Conclusion: Advantages and disadvantages of four systems.

## **12. The development of U.S. monetary institutions and policies 296**

U.S. monetary history prior to the Civil War. From the Civil War to the Federal Reserve: *Institutional deficiencies of the monetary system: 1865–1913. The Panic of 1907*. From the creation of the Federal Reserve through 1980: *Accomplishments of the Federal Reserve Act. The real-bills doctrine and other deficiencies. The World War I period. The contraction of 1920–1921. The stable 1920s. Background to the Great Depression. The Great Depression. The post-1933 period*.

## **13. Government monetary agencies, regulations, and the structure of the current U.S. monetary system 328**

The Federal Reserve. The Treasury. The Federal Deposit Insurance Corporation. Other federal government agencies and regulations. State regulations and agencies. The effective incidence of government regulatory controls in key areas related to money and credit.

## **14. The implementation of monetary policy and the operation of the money-supply process in the current system 344**

Federal Reserve policy variables: *Class I policy variables. Class II policy variables*. Policy variables proximate to spending decisions: *The M-1 money supply measures. Broad money aggregates and credit*. Intermediate indicators and targets: *The federal funds rate. Total reserves. Adjusted total reserves. Nonborrowed reserves. Free reserves and net borrowed reserves. The monetary base. Technical factors and sources of the monetary base. The adjusted monetary base and the money-stock multiplier: Deriving the multiplier in terms of ratios. Setting the intermediate target. Other intermediate targets and multipliers*.

Two views of the money-supply process and lagged-reserve accounting.

APPENDIX: RECORD OF POLICY ACTIONS OF THE FEDERAL OPEN MARKET COMMITTEE: MEETING HELD ON OCTOBER 6, 1979

**15. The demand for money: Alternative approaches, major theories, and evidence 390**

*Alternative approaches: Fisher's approach. Explaining changes in income velocity. The classical Cambridge approach. Postclassical monetary theory: Keynesian theory. Controversy, short-run analysis, and new insight into the demand for money: Keynes' criticism of the long-run focus of classical theory. Keynes' three motives for holding money. Baumol's transactions demand model. Tobin's analysis of liquidity preference. The modern quantity theory. Results of empirical studies.*

---

**PART FOUR • AGGREGATE SUPPLY AND DEMAND ANALYSIS**

**16. The aggregate supply and demand model of output and the price level: Summary and applications 420**

*Aggregate demand and supply: Aggregate demand factors. Aggregate supply factors. The aggregate demand curve. Types of inflation: Demand-pull inflation. Cost-push inflation. Balanced inflation. Wage and price controls: Controls with demand-pull pressures. Controls in a cost-push inflation. Inflation and unemployment: A cruel trade-off? The Phillips curve. How are expectations formed? Adaptive expectations. Rational expectations.*

**17. The determinants of aggregate demand 439**

*Keynes' contribution: Preliminary assumptions and definitions. The consumption function. The investment function. Equilibrium in the real sector. Equilibrium in the monetary sector. IS-LM analysis: The joint equilibrium of the real and monetary sectors: The IS curve. The LM curve. The effect of changes in the price level.*

**18. The determinants of aggregate supply 462**

*The production function: The capital stock. Other resources. The effective technological base. Supply-side equilibrium: The behavior of firms. The short-run aggregate supply curve: The effect of a rise in the price level. The effect of a fall in the price level. A change in the price of energy. Changes in the expected price level.*

---

**PART FIVE • ISSUES AND PROSPECTS**

**19. The relative strength of monetary and fiscal policies and other issues related to policy choice 480**

Empirical studies of the relative strength of monetary and fiscal policies; *The St. Louis studies. The FRB--MIT model.* Inside lags, outside lags, and policy instability; *The inside lag. The outside lag. Policy instability. Unemployment versus inflation. The costs of inflation. The costs of unemployment.* Internal versus external stability; *Mundell's strategy. The global expansion approach.*

**20. Further issues and prospects for the future 496**

Innovations in the financial system: *The means of payment. Mortgage instruments. Consumer credit and savings instruments. The international integration of credit markets. The pricing of intermediary services and loans to business.* Programmed regulatory changes: *Gradual elimination of Regulation Q. Reserve requirements for nonmember depository institutions. Adjustments to member-bank reserve requirements. Pricing of federal agency services.* Other proposals and prospects.

---

<b>APPENDIX • WALL STREET JOURNAL GUIDE FOR STUDENTS</b>	<b>505</b>
<b>Glossary</b>	<b>507</b>
<b>Index</b>	<b>517</b>

# **Introduction to money**

**PART  
1**

## Introduction

The study of money and credit may appear in your college catalog as just another field in economics or finance, but it is an especially important field which involves some unique and interesting problems and which encompasses some heated controversies. Controversies in this field are due to the special importance of money and credit to the economy, to the institutional characteristics of the monetary system, and to the various interests that have evolved in the financial sector.<sup>1</sup>

Many issues in money and credit will be dealt with in relative isolation in various chapters of this book. However, there are two broad, related problems which will be of concern throughout this book. These are: (1) what government regulations and policies are

---

<sup>1</sup>Serious misunderstandings of material covered in this book often arise because of confusion regarding definitions of terms being used. This is especially true of the term *money*.

Webster includes the following among other definitions of *money*: "wealth reckoned in terms of money" and "the first, second, and third place winners in a horse or dog race" (*Webster's New Collegiate Dictionary*, 8th ed., © 1973 by G & C Merriam Company, s.v. "money"). Other, more colloquial definitions abound. The problem is not helped by the fact that economists and financial analysts often use the term in different senses (though not as the winners of a horse race) and, as explained in the next chapter, there are even different definitions of money within the limited sense of the term as used in this book. (continued on next page)

required to keep the financial sector from excessive fluctuations and possible collapse? and (2) what are the government policies in the area of money and credit which will produce the least inflation (or deflation) and lost output in the overall economy? Unhappily, there have been periods when government regulations have been inadequate and periods when government policies have tended to destabilize the economy. The section below describes one particularly severe example of government regulation and policy failure. It is presented in this chapter to illustrate the importance of the material covered in the text.

## THE GREAT DEPRESSION AND THE BANK HOLIDAY OF 1933

Beginning in the summer of 1929, the U.S. economy suffered probably the worst decline in its history. The banking system played a role in this decline as banks were affected by the weakening economy and, in turn, contributed to the fall in income. Banks passed through a series of serious crises as the economy deteriorated. The final and most severe crisis occurred in early 1933.

During the Great Depression and earlier crises, fears of bank failures led to runs on banks. In a run, depositors convert deposits into currency, causing banks to call loans and contract credit.

As you probably already know, banks keep reserves equal to only a small fraction of their deposits; hence no bank has enough reserves to meet a run by all of its depositors. Once a bank showed signs of weakness during the Great Depression, this was a signal to depositors to get their money out before it was too late. Depositors' fear of a bank failing was capable of causing even an ordinarily sound bank to fail unless it was permitted to restrict withdrawals temporarily. In late 1932, runs spread to such a degree that governments of many states instituted special bank holidays which permitted banks to suspend or restrict withdrawals of deposits temporarily. It was hoped that this would give time for panic to subside.

Runs on banks  
and bank  
holidays

During the three years prior to 1932, over 5,000 banks had gone out of business, many with insufficient assets to cover their liabilities. (See Figure 1-1.) As a result, depositors lost almost \$800 million in savings.<sup>2</sup> Those banks which had not failed became increas-

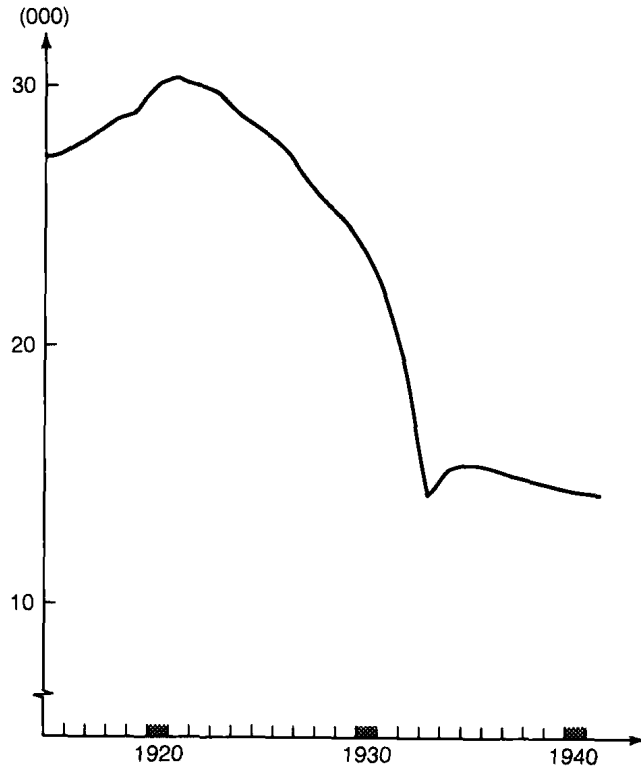
---

To avoid confusion in the discussion ahead, the term *money* will always refer to whatever is used in making payment in transactions in the economy, unless otherwise indicated. In particular, money is not credit, and it also is not income or spending.

Other important terms with which the reader is assumed to be familiar include *GNP*, the *price level*, *real income*, *capacity output*, and the *business cycle*. An appendix to this chapter provides a review of conceptual and empirical definitions of these and some related terms. For a general, quick reference for definitions of terms encountered frequently in the text, see the glossary at the end of the book.

<sup>2</sup>One problem, as we will explain more in a later chapter, was that there was no deposit insurance in those years.

**FIGURE 1-1**  
**Number of commercial banks in the United States**



Note: Much of the decline in the number of banks in business which began in 1920 and accelerated in 1929 represented mergers with no loss to depositors.

SOURCE: *Historical Chart Book* (Board of Governors of the Federal Reserve System, 1973).

ingly unable to convince depositors that deposits were safe. Savings and loans and other thrift institutions were also experiencing heavy withdrawals and failures with losses to their depositors. By late February 1933, fear among institutions and depositors was so pervasive and strong that there seemed to be nothing that could prevent a collapse of the whole financial system.

The Federal Reserve, the nation's central bank which had been created in 1913 mainly to prevent such bank panics, could not decide what to do, and its officials took no ameliorative action. The Hoover administration was also stymied. Because he was about to end his tenure, Hoover felt constrained unless a concerted plan could be worked out with President-elect Roosevelt; but the incoming president did not want to be associated with the previous administration or its policies.

Further complicating and compounding the problem of the public's fear of bank failures was a second fear—a fear that the United States under Roosevelt was going to abandon the gold standard.

The lack of  
 meaningful policy  
 response

International  
 aspects of the  
 crisis

Under the gold standard, the government was committed to exchange a fixed quantity of gold (coin or bullion) for its paper and deposit money liabilities on demand. If this commitment were abandoned by the new administration and Congress, the value of paper and deposit dollars might fall in terms of gold. Fearing this, foreigners and many Americans rushed to convert these dollars into gold, reducing gold reserves in the Federal Reserve Bank of New York to a level below the then legal minimum. (More will be said about the gold standard in later chapters.)

On Saturday, March 4, 1933, in an atmosphere of extreme crisis, Franklin D. Roosevelt was inaugurated. Acting swiftly and dramatically, at 1:00 A.M., Monday, March 6 he issued a proclamation which ordered every bank in the country closed for all but essential transactions for a period of four days. All banks were to be examined, and those determined to be sound would be licensed by the federal government to reopen. Withdrawals and exports of gold, silver, or currency were prohibited under maximum penalty of \$10,000 or 10 years in prison.<sup>3</sup> Subsequently, the bank holiday was extended to a week to allow more time for banks to be certified to reopen.

Moves to restore confidence

During the business week of March 6–11, the country had to make do without transfers or withdrawals of bank deposits except for limited, essential needs. Personal credit and scrip (emergency currency—not permanently legal tender) partly cushioned the shock, but most normal transactions were disrupted. Over the next few weeks most banks were permitted to reopen, and in place of runs, many depositors returned their hoards of gold and currency to the banking system.

However, at the end of the year more than 1,500 banks still remained closed by government order and another 1,000 had gone out of business causing severe losses to depositors. Partly because of bank closures and partly because of panic reactions of the public and banks, there had been a sharp reduction in the nation's supply of money and credit. The fall in the money supply between mid-1929 and the spring of 1933 was about 28 percent. This decline in the money supply unquestionably contributed to the severity of the depression.

The effect on the supply of money

By the spring of 1933, the economy was reeling with an unemployment rate of 25 percent, production at only two thirds the 1929 level, and prices 25 percent lower than they were in 1929. If more money and credit had been provided to stimulate demand, production and prices probably would have declined less severely and recovered more rapidly. Instead, financial and monetary collapse ex-

The effect of the money supply on the economy

---

<sup>3</sup>Roosevelt claimed authority to issue these orders based on the Trading with the Enemy Act of 1917. Congress, in a special session, validated that claim four days later.



acerbated the economic collapse.

Recovery from the Great Depression was agonizingly slow. By 1940, the unemployment rate was still 15 percent, and full employment was not reached until the nation mobilized for World War II.

---

## INTRODUCTION TO ARTICLE

Since the Great Depression, failures of banks and other depository institutions have never reached anywhere near the proportions experienced during those grim years; however, depository institutions still fail. When they do, most depositors of "insured" institutions are covered by Federal deposit insurance which was introduced in the mid-1930s and which now guarantees deposits up to \$100,000.

Despite this protection for most depositors, the safety of the depository institution system cannot be taken for granted. As the following article in *The Wall Street Journal* describes, losses among thrift institutions as a result of high interest rates and doubts about the capacity of the federal insurance agencies to rescue the system were a source of considerable concern and a spur for new legislative initiatives in the spring of 1981. There is probably little chance that a crisis of confidence and a full-fledged financial panic on the order of the Great Depression will again grip our economy, but such an event cannot be ruled out altogether.

---

### Saving Plan: Bill to Aid Sick S&Ls Could Eventually Lead To Interstate Banking

To handle growing insolvencies among savings institutions, uneasy federal regulators are seeking potentially radical changes in the way that they and the whole financial system operate.

From its founding during the Depression until last year, the Federal Savings & Loan Insurance Corp., the main insurer of deposits at savings and loan associations, had to deal with an average of about one thrift-institution failure a year. It did so either by liquidating the S&L and reimbursing depositors or by paying another S&L to take over part or all of the insolvent concern. Sometimes, the FSLIC itself would buy the loan assets of a failed thrift if their yields were so far below market rates that disposal of them would cost the agency a bundle.

But no longer is sole reliance on these tactics possible, because of the sheer number of S&Ls being endangered by high interest rates.

In March alone, the FSLIC added 114 S&Ls to its problem list—increasing the total of troubled thrifts 86% to 246. The agency concedes that 120 may be left with little or no net worth by year-end and that another 100 could be in the same fix in 1982.

"The FSLIC is swamped," says a former official of the Federal Home Loan Bank Board, the agency's parent body.

#### Problem of confidence

Testifying before the Senate Banking Committee last month, Richard Pratt, new chairman of the Bank Board, acknowledged that the amount of the FSLIC's spending this year "could have an unsettling effect upon public confidence in the insurance fund." He added, "We are at the point . . . where truly significant increments of assistance must come from Congress."

The thrift regulators, including the Federal