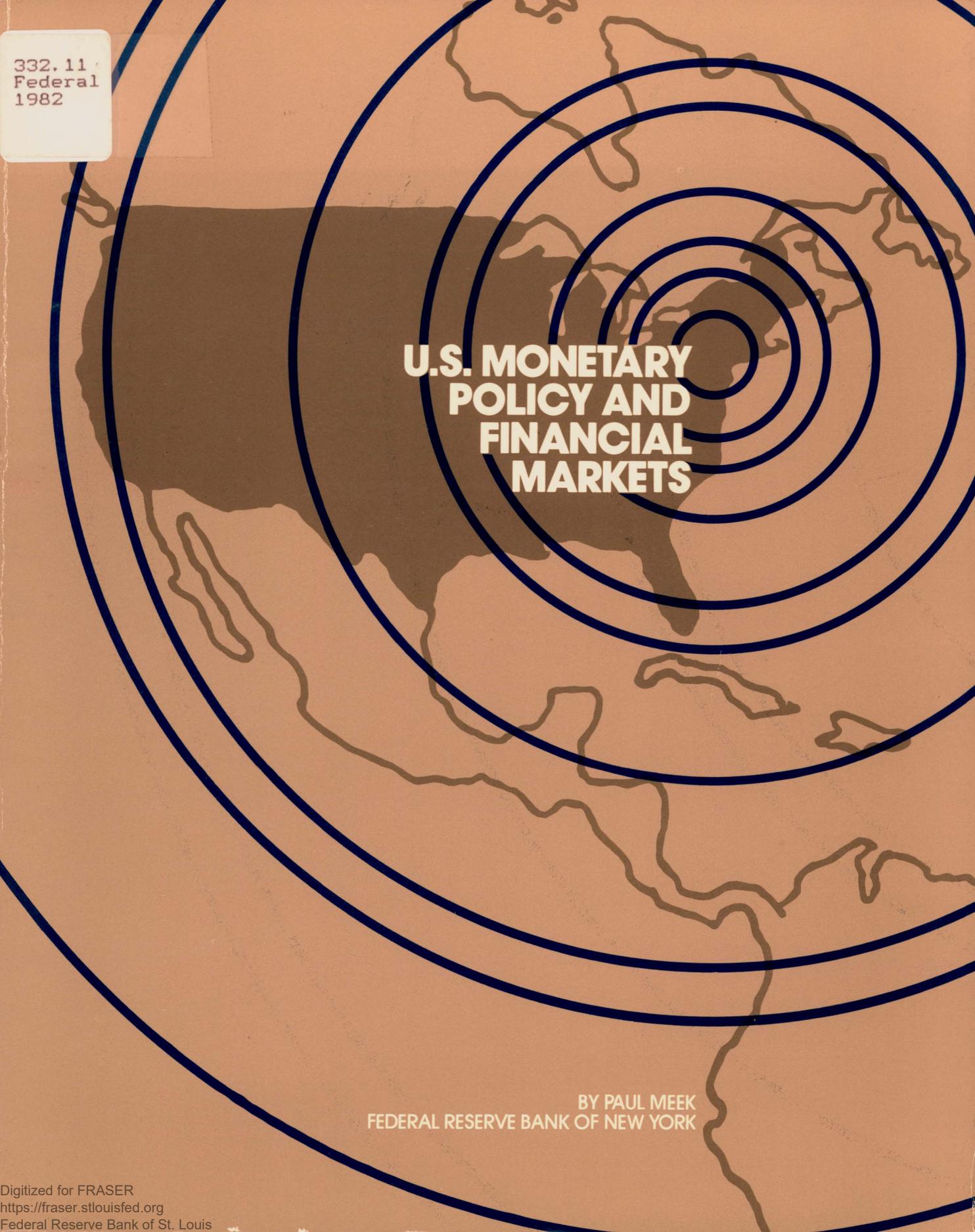


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**U.S. MONETARY
POLICY AND
FINANCIAL
MARKETS**

BY PAUL MEEK
FEDERAL RESERVE BANK OF NEW YORK



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U.S. MONETARY POLICY AND FINANCIAL MARKETS

**BY PAUL MEEK
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Foreword

Over 25 years ago, *Federal Reserve Operations in the Money and Government Securities Markets* by Robert Roosa provided a generation of students with a graphic picture of open market operations, and the pulsating life of the money market.

In this volume, Paul Meek, Monetary Adviser, has brought the story up to date and expanded its scope to include Federal Reserve policy procedures and policy's outward thrust to the economy. In his description and analysis, he has captured something of the fascination that monetary policy and financial markets have for policymakers and market participants.

All of us engaged in the policy process find ourselves challenged today more than ever by the rapidity with which changes in financial markets and economic behavior affect the ways in which policy exerts its influence. This book provides a useful introduction to the mysteries of central banking and the vagaries of human behavior that keep central bankers humble.

Anthony M. Solomon
President

New York City
October 1982

Acknowledgements

To a young economist at the Federal Reserve Bank of New York, Bob Roosa's red-covered book was a revelation. In matchless prose he described how the open market desk provided flexibly the money needed by the economy while simultaneously affecting its performance. Roosa's trenchant analysis of the defensive and dynamic aspects of operations illuminated the nature of the basic tasks all central banks must perform. A quarter century later, monetary policy issues and the financial markets remain as vital and engrossing as when Roosa wrote. The present book carries on a New York Bank tradition of describing monetary policy from the vantage point of the trading desk where domestic open market operations are carried out.

The book owes a great deal to the active encouragement of many colleagues of long standing in the Federal Reserve System. Alan R. Holmes, formerly Manager of the System open market account, initiated the enterprise. Peter D. Sternlight, the present manager for domestic operations, saw it through, patiently offering wise counsel and felicitous phrases through several drafts. Paul A. Volcker was very supportive when the project began during his tenure at the New York Bank. Anthony M. Solomon and Thomas M. Timlen kept it rolling. The book, in fact, was well on its way to completion in October 1979, when changes in open market procedures brought a halt while both desk officers and the financial markets gained experience with the new approach. In the final phase Stephen H. Axilrod, staff director for monetary and financial policy at the Board of Governors, graciously took time to read and comment on the manuscript.

Many of my Federal Reserve associates gave me the benefit of their comments on one or more chapters; the remaining errors are mine, not theirs. At the New York Bank, I am particularly indebted to my open market colleagues who have helped me keep abreast of rapidly changing financial markets and institutions — Bill Cavanaugh, Silvanus Chambers, Mary Clarkin, Diane Heidt, Ralph Helfrich, Janet Knudsen, Fred Levin, Joan Lovett, Chris McCurdy, Ann-Marie Meulendyke, Edward Ozog, and Irwin Sandberg. Others from the bank who gave valuable help include: Akbar Akhtar, Marcelle Arak, Richard Davis, Kenneth Garbade (now at N.Y.U.), Ronald Gray, Richard Hoenig, Roger Kubarych, Scott Pardee (now at the Discount Corporation of New York), Lawrence Radecki, Arthur Samansky, Neal Soss, Steven R. Weisbrod, Betsy White and H. David Willey. At the Board of Governors,

Peter Keir, Brian F. Madigan, Norman Mains and James Symonowski tendered many useful comments.

Any author writing on financial markets depends greatly on the active players who take the risks of making markets or giving their own judgments on monetary policy and the economy. My obligations to many friends in the banks and markets for their help stretch over many years of stimulating discussions. For the book itself, I owe a special debt to Al Wojnilower of The First Boston Corporation for his thoughtful suggestions after a careful reading of the entire manuscript. On commercial bank asset/liability management my mentors include: Robert W. Stone (Irving Trust Company), Donald Riefler and Rene Branch (Morgan Guaranty), Wolfgang Schoelkopf (Chase Manhattan), David Barry (Manufacturers Hanover) and Richard Falk (Citibank). On the money market, Marcia Stigum's fine book *The Money Market* was a great help. I benefited as well from suggestions made by Darwin Beck (First Boston), Donald E. Maude and Maria Ramirez (Merrill Lynch), William Melton (Irving Trust), Robert Ried (Ried & Thunberg), George van Cleave (Goldman, Sachs), and Jerry Wigdortz (Salomon Brothers).

Daniel Rosen of Public Information handled admirably the manifold chores involved in bringing the book to publication. Richard Alford, Tim Lord, and Robert van Wicklen helped in the final production, as did Phil Krackow and his associates in the visual aids area of the Bank's research department.

Perhaps the most important credits remain for last. Teresa Roland and Olga Pasqua labored with unfailingly good spirits through seemingly endless drafts, struggling with my handwriting, adding punctuation, and keeping drafts on their appointed rounds. My wife Rachael Lee Meek and my daughter Mary Melati bore with good grace the burden of writing weekends and my absentmindedness on other important matters. Shorouk Abbas, our visiting Egyptian daughter, shared a full measure of that burden during these last few months.

New York, New York
October 1982

U.S. Monetary Policy and Financial Markets

1	Monetary Policy and The U.S. Economy	<i>page 2</i>
	<i>U.S. Monetary Policy – A Short History</i>	6
	<i>The Current Policy Process</i>	8
	<i>The Commercial Banks</i>	10
	<i>The Money and Capital Markets</i>	11
	<i>The Economic Impact</i>	14
2	Developing Monetary Policy Strategy	<i>page 20</i>
	<i>The Goals of Policy</i>	20
	<i>The Evolution of Policy Strategy</i>	21
	<i>The FOMC</i>	24
	<i>The Policy Process</i>	26
	<i>1. Economic Models and Monetary Policy</i>	27
	<i>2. The February Meeting</i>	31
	<i>a. Preparation</i>	
	<i>b. Staff Presentation</i>	32
	<i>c. Adopting an FOMC Strategy</i>	34
3	Commercial Banks — Managers of Risk	<i>page 38</i>
	<i>The Business of Banking</i>	38
	<i>Banking Risk</i>	40
	<i>Managing Risk</i>	41
	<i>1. The Profit Plan</i>	43
	<i>2. ALCO – Organization and Function</i>	45
	<i>3. Shaping a Profitable Strategy</i>	47
	<i>Implementing Bank Strategy – the Money Desk</i>	51

<i>The Function of the Money Market</i>	58
<i>Banks and The Money Market</i>	61
1. <i>The Federal Funds Market</i>	63
2. <i>The CD Market</i>	66
3. <i>Bankers' Acceptances</i>	69
4. <i>The Eurodollar Market</i>	72
<i>The Nonbank Money Market</i>	74
1. <i>The Treasury Market</i>	74
a. <i>The Stock in Trade: Government Securities</i>	74
b. <i>The Role of Dealers</i>	76
2. <i>The Market for Federally Sponsored Agency Securities</i>	81
3. <i>Commercial Paper</i>	83
4. <i>Municipal Notes</i>	86

<i>Reports of the Managers</i>	88
1. <i>The Report on International Developments</i>	88
2. <i>The Report on Domestic Operations</i>	90
<i>The Staff Input</i>	91
1. <i>Economic Outlook</i>	91
2. <i>Policy Alternatives</i>	92
<i>FOMC Decision Making</i>	93
1. <i>Sizing Up the Economic Situation</i>	94
2. <i>Discussing the Directive</i>	95
3. <i>The Vote</i>	97

The Transmission of Monetary Policy: The Credit Markets and The Economy

page 160

<i>Monetary Policy and Yield Curves</i>	160
<i>Policy's Effect on the Economic Sectors</i>	163
1. <i>The Household Sector</i>	165
2. <i>The Business Sector</i>	167
3. <i>State and Local Governments</i>	169
4. <i>The U.S. Government</i>	170
<i>The International Dimension</i>	171
1. <i>U.S. Economic Expansion</i>	173
2. <i>U.S. Recession</i>	175

Monetary Policy — The World Scene

page 178

Monetary Policy and the U.S. Economy

Monetary policy is concerned with money and credit, and their interaction with jobs, production and prices. As the nation's central bank, the Federal Reserve System has a dual responsibility, which Robert Roosa defined years ago as having defensive and dynamic features.¹ First, there is the responsibility to defend the monetary system against both routine and unpredictable strains, which develop as goods are produced and consumed. The central bank exercises this *defensive* function by insuring that money and credit are readily available to meet the highly variable day-to-day and week-to-week needs of a market economy. The central bank's *dynamic* responsibility is to see that money and credit grow over longer periods in step with the nation's expanding productive potential. The art of central banking consists of allowing money and credit to flex with society's demands in the short run without compromising the central bank's ability to influence them appropriately over a longer horizon.

Any central bank must operate so that money is available on short notice, that producers and consumers do not lack the cash required for the millions of transactions that bind them together. For the productive machinery to run smoothly in all seasons, people must be able to acquire money for making payments without difficulty. To do so, they have to be able to sell liquid assets for cash or to borrow money with a minimum of uncertainty. The regional Federal Reserve Banks and depository institutions, working together, provide coin, currency and checkable deposits routinely and efficiently wherever they are needed. Banks and the money market enable people to borrow on short notice or turn liquid assets into cash.

The challenge to the Federal Reserve lies in combining such short-run flexibility with its dynamic responsibility for influencing money and credit growth to foster a healthy economy. There is little reason to be concerned if money and bank credit rise rapidly for a few weeks or slow down for a month or two. But central bankers and economists discovered long ago that rapid monetary and credit growth, if maintained long enough, leads to inflation while a sustained decline in such growth produces economic recession and deflation. Monetary policymakers meet reg-

¹Robert V. Roosa, *Federal Reserve Operations in the Money and Government Securities Markets*, Federal Reserve Bank of New York, 1956, pp. 2-3.

ularly to decide whether observed short-run developments in money and credit — and in the economy itself — threaten to undermine balanced economic growth, reasonable price performance, and equilibrium in international transactions. For them, money and credit growth is an intermediate objective, one that lies between the daily business of providing liquidity and their ultimate concern with the economy's performance.

Federal Reserve policymakers have three primary instruments for influencing money, credit growth, and the economy. Through each, they can affect the cost and availability of reserves to commercial banks and other institutions offering checkable deposits.² Central bank officials can modify the legal reserve requirements that deposit-taking institutions must meet. Secondly, they can change the discount rate the twelve regional Federal Reserve Banks charge banks and other depository institutions for short-term adjustment credit; they can also change the terms on extended credit or emergency borrowing. Lastly, policymakers direct open market transactions in U.S. Government and other securities to govern the pace at which reserves are supplied to the financial system. These open market operations, carried out by the domestic trading desk of the Federal Reserve of New York, enable money and credit to respond to the public's daily, weekly, and monthly demands while still permitting control of the flow available to the economy over longer periods.

The Federal Reserve's strategy for carrying out its defensive and dynamic responsibilities centers in the instruction the Federal Open Market Committee (FOMC) gives to the domestic trading desk at the New York Reserve Bank.³ For many years *defensive* open market operations consisted of supplying sufficient nonbor-

²The Consumer Checking Account Equity Act of 1980 permitted nonbank institutions to offer checking account services in the form of negotiable orders of withdrawal (NOW) accounts on a nationwide basis, beginning January 1, 1981. The Monetary Control Act of 1980 imposed a phased introduction of reserve requirements on checkable deposits at credit unions, savings banks, savings and loan associations, and commercial banks, which were not members of the Federal Reserve System. Commercial banks currently account for the bulk of reserves, which the Act requires to be maintained, either in the form of vault cash or deposits at Federal Reserve Banks. Since required reserves provide monetary policy's fulcrum, this booklet focuses on commercial banks as the primary channel for the transmission of policy.

³The Federal Open Market Committee consists of the seven members of the Board of Governors and five of the 12 presidents of the Federal Reserve Banks.

rowed reserves⁴ to maintain the Federal funds rate reasonably steady from week to week, enabling banks to meet changing demands for money at reasonably steady interest rates; *dynamic* operations involved changing the Federal funds rate objective in order to slow down, or speed up, money and credit growth.⁵

In late 1979 the Federal Reserve changed its approach. *Dynamic* operations then became addressed to supplying non-borrowed reserves at a rate thought consistent with achieving the growth of money desired over the calendar year. In the new look, *defensive* operations became those intended to compensate for seasonal and irregular short-run changes in bank reserves. Such defensive operations allow for seasonal changes in money demand. They also offset changes in reserve availability that result from the check collection process and other forces outside central bank control.

Under the new procedures, dynamic operations automatically lead to changes in interest rates whenever the economy's demand for money departs significantly from Federal Reserve objectives. A surge in money demand increases the demand for reserves, results in increased borrowing at the Federal Reserve discount window, and produces a higher Federal funds rate. A slackening of money demand has the opposite effect.

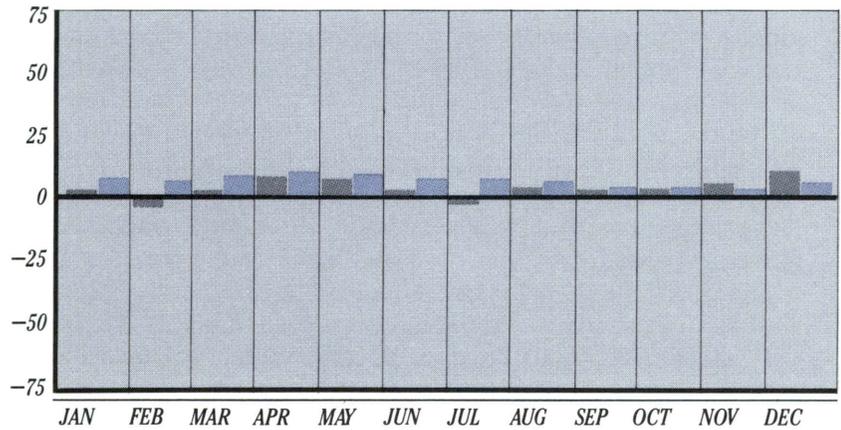
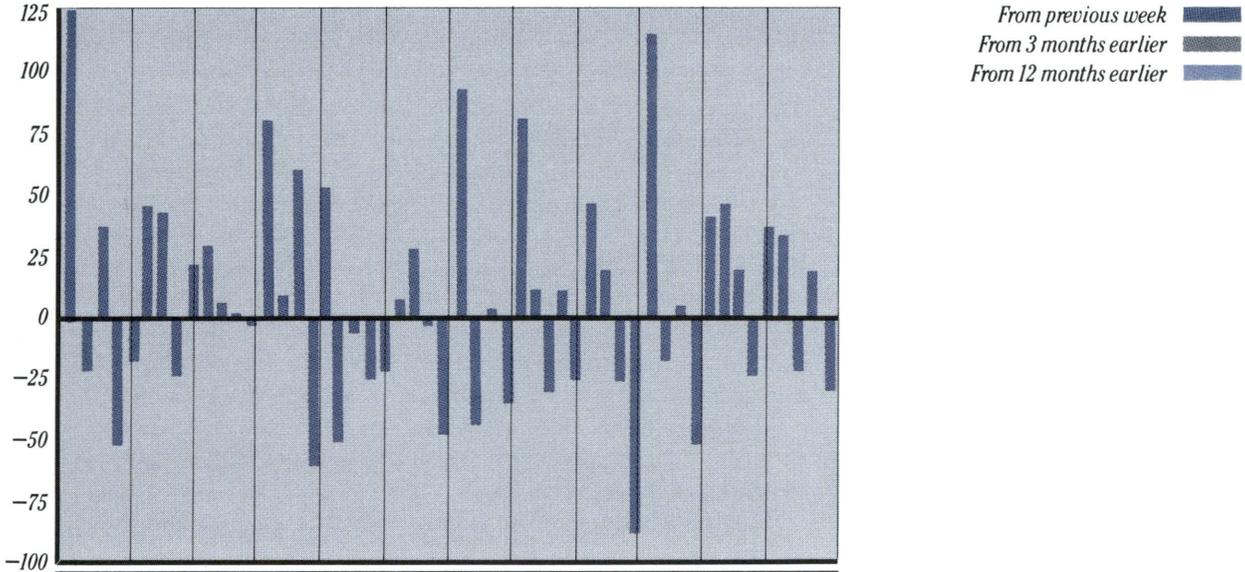
The FOMC's procedures must cope with the fact that money demand is highly variable on a week-to-week basis — even after seasonal adjustment (see Chart 1, page 5). Since October 1979 the desk has aimed at achieving an average level of nonborrowed reserves between FOMC meetings. This procedure means that the pressure on banks to borrow does not change because of weekly variations in money demand so long as money growth on average is about as desired over the period.

The Federal Reserve can also add to the pressure being exerted on the behavior of banks and their customers by changing the trading desk's objective for nonborrowed reserves. Or it can modify the Federal Reserve discount rate or reserve requirements. As banks and other institutions react to changes in reserve supplies or the terms on discount window loans, their response affects financial markets and interest rates almost in-

⁴*Nonborrowed reserves of depository institutions are their total reserves (vault cash and balances at Reserve Banks) less adjustment borrowings from the Reserve Banks. By its control over nonborrowed reserves the trading desk influences strongly the amount of borrowing such institutions need to do to cover their weekly reserve requirements.*

⁵*The Federal Funds rate is the interest rate on overnight inter-bank loans.*

Chart 1 Changes in M1 (Seasonally Adjusted Annual Rates)



stantaneously. Financial markets carry this impetus forward not only to the demand for money and credit but also to production, employment and prices.

***U.S. Monetary Policy
– A Short History***

The history of the Federal Reserve System is one of evolving interest in meshing its defensive responsibilities with the more dynamic concerns of monetary policy. When the U.S. Congress established the Federal Reserve in 1914, it did so because the decentralized banking system of the time seemed unable to provide flexibly for the cash and credit requirements of a growing economy. The Federal Reserve Act set up a Board of Governors in Washington and Federal Reserve Banks in 12 regions of the country. The need for an elastic money supply was to be met by allowing the Reserve Banks to buy securities or to discount loans made by the commercial banks. Credit to the banks would rise and fall with business activity, it was thought, providing a self-adjusting mechanism, one which would prevent shortages of money, or runs on banks, from leading to financial panic and a breakdown in the economy.

This hands-off approach gave way almost immediately under the challenge of financing U.S. participation in World War I and dealing with the postwar inflation.⁶ Within its first decade the Federal Reserve Board acknowledged its responsibility for resisting extremes of either inflation or recession. During the 1920s the Federal Reserve coped successfully with seasonal changes in money and credit, which had previously imposed strains on the financial system. Defensive open market operations in bankers' acceptances and Government securities supplemented the role of the discount window in making reserves readily available to the banks. Interest rates no longer experienced seasonal fluctuations to the degree that had prevailed before 1914. However, the Federal Reserve was less successful in dealing with cyclical forces; it failed to restrain the speculative credit boom of 1929, which culminated in the stock market crash. Federal Reserve actions to raise interest rates in order to stem a gold outflow in the fall of 1931 contributed to a catastrophic collapse in the economy that led to widespread bank failures and raised unemployment from 3 percent of the civilian labor force in 1929 to 25 percent in 1933.

⁶*Milton Friedman and Anna Jacobson Schwartz, A Monetary History of the United States, 1867-1960, Princeton, 1963, Chapters V and VI.*

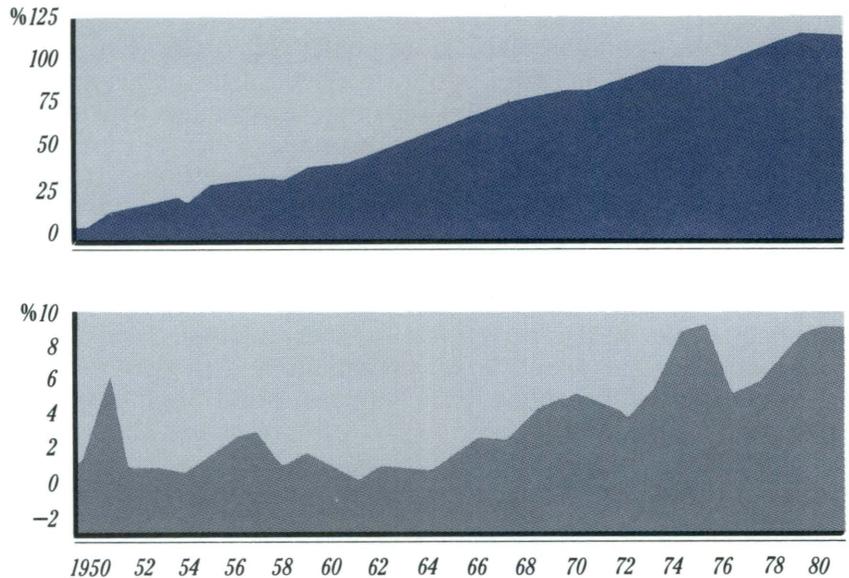
In the 1930s the Federal Government undertook a more active role in economic affairs. Congress reshaped the financial system to improve its operation and restore public confidence. It regulated the securities industry, introduced deposit insurance and margin requirements on stocks, separated investment banking from commercial banking, and set up Federal housing agencies. It also established in law the Federal Open Market Committee, which had developed informally in the 1920s to oversee Federal Reserve open market operations. Monetary policy contributed little to spurring economic activity; economic policy relied on deficit spending by the Federal government to stimulate the economy. Banks held reserves far in excess of their legal requirements so that open market operations and the discount window fell into disuse in the 1930s. Yet when World War II began, open market operations played a key role in underwriting the defense buildup. Trading desk purchases of Treasury issues at pegged interest rates expanded bank reserves and financed a wartime surge in production.

After the war, the nation's resolve to avoid another depression was embodied in the Employment Act of 1946. The Federal Government, including the Federal Reserve System, actively sought to achieve reasonably full employment of resources. The economy shifted resources quickly to civilian production, and by the late 1940's inflationary pressures began to appear. In restraining money and credit growth, the Federal Reserve was handicapped by its commitment to support Government securities prices, stabilizing interest rates. In 1951, when the Korean War was adding to total demand, the Treasury and Federal Reserve reached an accord, which ended price stabilization in the Government securities market. Federal Reserve open market operations soon became the most actively used policy instrument for affecting bank reserves and the economy. The discount window became a privileged source of short-term credit to assist individual bank adjustment and to buffer the banking system from unforeseen stresses.

In the 1950's and much of the 1960's, national economic policies were generally successful in fostering economic growth with reasonable price stability (see Chart 2, page 8). But in the 1970's the persistence of historically high rates of price inflation led Congress to give price stability clearer recognition as an economic goal. Today, the Full Employment and Balanced Growth Act of 1978, the Humphrey-Hawkins Act, provides the legislative framework for monetary policy.

Chart 2 Real GNP Growth and Inflation (since 1949)

■ Cumulative Real Growth
■ Annual Inflation



The Current Policy Process

Responsible to the Congress, the Federal Reserve System works to help achieve society's economic goals: full employment of a growing work force, rising incomes, and stable prices in a world of interdependent national economies. But aspirations are not self-fulfilling. Under the law, monetary policymakers are required to develop annual objectives for monetary and credit growth with these goals in mind, and to report periodically to the Congress. In practice, policymaking moved during the 1970's from emphasizing control of credit extended by banks to focusing on how fast the monetary liabilities of the financial system grow. The Monetary Control Act of 1980 underscored this change in analytical focus by imposing reserve requirements on the checkable liabilities of all depository institutions.

In establishing annual monetary objectives and pursuing them, policymakers analyze a dynamic economic process whose direction and momentum are often unclear. The president's economic plans and budget proposals are important, but how consumers and businessmen will spend and save in the quarters ahead is more often the key to the economy's performance. The Federal Reserve also has to estimate how use of its own instruments will affect money, credit, and interest rates, and thereby

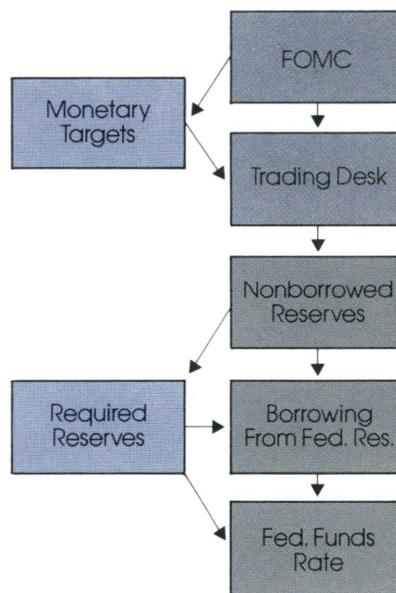
influence the production of real goods and services.

The policy process centers in the Federal Open Market Committee, which typically meets eight times a year in Washington. The chairman of the Board of Governors presides over these meetings when he, his six fellow governors, and the 12 presidents of the regional Reserve Banks consider the economic outlook and plan monetary policy. The Committee proper — the voting members — includes the seven governors of the Board, the president of the New York Reserve Bank, and four other Reserve Bank presidents, who serve in annual rotation.

Under the Humphrey-Hawkins Act, the chairman reports to the banking committees of the Congress every February on the objectives the FOMC has set for the growth of various monetary and credit measures during the current calendar year. In July, he reports any revisions in that year's objectives, along with preliminary goals for the subsequent year. At every meeting the Committee adopts instructions to the domestic trading desk at the New York Fed, prescribing desired growth for selected measures of money over several months. It indicates an expected initial level of borrowing at the discount window. The Board staff can then determine the nonborrowed reserve level consistent with the FOMC's money growth objectives; this level constitutes the New York trading desk's objective between committee meetings. The committee also instructs the foreign exchange trading desk at the New York Reserve Bank concerning foreign exchange operations, an area in which the U.S. Treasury has primary policy responsibility.

The Committee's supply-oriented reserve strategy means that stronger-than-desired growth in money will force banks as a group to borrow more at their district Reserve Banks. Such credit is available only temporarily while the banks adjust, either by reducing assets or borrowing elsewhere. As they adjust, the banks bid up the Federal funds rate and the rates they pay to attract deposits, quickly affecting the loan terms and portfolio choices of financial institutions. Holders of money and other financial assets redistribute their assets away from money to higher yielding assets, tending to return money growth to the desired dimensions. These financial changes also work to slow economic growth. Conversely, a persistent shortfall in money growth leads to reduced bank demand for reserves, a decline in borrowing at the discount window, and a fall in interest rates. The

Chart 3 Open Market Operations and Bank Reserves



resultant portfolio adjustments work to spur monetary growth, increase credit availability and quicken economic activity (see Chart 3, page 9).

The Commercial Banks

Monetary growth reflects continuing interaction between the central bank, financial institutions, the money market and bank depositors. The Federal Reserve can govern the pace at which the trading desk supplies reserves to depository institutions, but bank customers determine, by and large, how much money they want to hold, and in what form. Consumers, businessmen, and governmental bodies adjust their holdings of money with income, payment patterns, the services banks offer, and the rate of interest available on other obligations. People naturally prefer interest-earning assets like time deposits or money market funds, so long as they can be converted on short notice into currency and checkable deposits for paying bills, taxes, or employees.

Banks and other institutions, which make a variety of types of deposits available to their customers, have little influence on how their customers use their services in the short run. The changing demands of their customers for money balances, combined with the different reserve ratios that apply to individual deposit categories, largely determine the required reserves depository institutions must maintain at the Federal Reserve Banks, week to week, even month to month. Over the long run, of course, banks can influence the growth of different types of deposits by changing the terms they offer. When banks offer higher interest rates on money market certificates or other deposits, people economize still further on demand deposits, and the longer such incentives exist, the greater the effect on public demand for currency and demand deposits.

Banks play a key role in affecting financial markets and the economy. As the most flexible of financial borrowers and lenders, banks merchandise credit aggressively to borrowers that range from retail customers to home buyers, from small local businesses to international corporations, from local school boards to industrial and developing countries. The banks mobilize loanable funds by offering deposit services in local markets and by bidding for large balances through negotiable certificates of deposit (CDs) domestically and Eurodollar deposits in markets abroad. Profit-oriented, bank management focuses on expanding loans and other assets. Simultaneously, management tries to maintain,

or increase, the spread by which interest and other income exceeds borrowing and other costs. In the profit calculus, legal reserve requirements on bank liabilities add to bank costs, a sort of franchise tax on an industry with controlled entry and official supervision.

Bankers manage their assets and liabilities so as to maintain a positive spread between the interest rate earned on assets and the interest cost of borrowed money. When interest rates are volatile and the outlook uncertain, bankers typically prefer locking in a positive spread, emphasizing floating rate loans at a markup over the cost of borrowed money. In periods when they expect declining interest rates, bankers may move toward intermediate- or longer-term assets with fixed interest rates, financing them with low cost short-term liabilities. When they expect rising rates, bankers may increase and extend fixed rate liabilities as early in the cycle of rising rates as seems prudent.

Careful projections assist banks in deciding how to meet burgeoning loan demand or how to invest potential resources. The pace of economic activity strongly affects the form and intensity of credit demands, and the extent to which such demands can be financed through the growth of customer deposits. Bankers must worry, too, about the impact of fiscal and monetary policy on the projected outlook. As a bank maps its strategy, it tries to make sure that investors and regulators will consider the institution's capital base adequate in relation to its size and the businesses in which it is engaged.

The banks monitor customer demands, shifting opportunities, and the behavior of the monetary authorities against prior expectations. For many, Fed-watching is a necessity. Managers of the money market banks track weekly money supply data and open market operations for possible clues to the future course of interest rates. Asset-liability committees meet regularly as bankers try to protect the positive interest spread needed to achieve the year's profit goals from errors in judging the timing, or extent, of interest rate changes.

The money market responds immediately to the economy's changing demands for money, interacting with the Federal Reserve's management of reserves. Broadly defined, the money market includes the interconnecting markets for debt instruments maturing in less than one year. Financial institutions, businesses and governments place funds in the market, or bor-

row from it, to bridge differences in timing between receipts and payments. They also use it to defer long-term borrowing or lending to a more propitious time.

The money market is truly international; banks bid for, and lend, dollar funds throughout the world. The foreign exchange markets link the global dollar market to offshore bank markets in deutschemarks, Swiss francs, sterling, yen, and other currencies. They also tie it to national money markets in London, Zurich, Frankfurt and elsewhere.

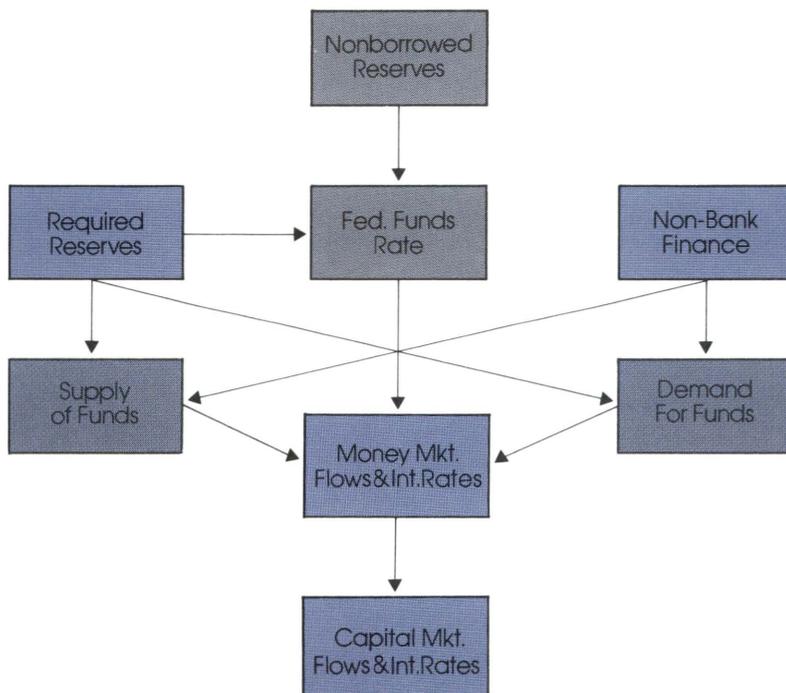
The money market stretches from Federal funds, the overnight market for bank reserves, out to one-year maturities. It merges into the capital market, a continuum of obligations that extend as far as 40 years. The dividing line between the money and capital markets is somewhat arbitrary. More important than the precise location of such a line is the fact that market influences continually wash across the boundary. For the Federal Reserve the market's sheer size enables the domestic trading desk to conduct both *dynamic* and *defensive* operations efficiently — and with a degree of visibility seen throughout the financial markets.

If money and credit preoccupy the central bank, interest rates are the obsession of financial markets. To dealers and traders, profitability depends on being nimble, anticipating changes in rates or catching a move soon after it begins. For fixed income investors, leadership in the rate-of-return derby goes to those who divine the rates. For borrowers, the cost of capital provides the yardstick for measuring the productivity of investment projects. Whatever the central bank's approach to open market operations, market participants have to translate desk actions into their own decision variable, interest rates.

The Federal Reserve's dynamic policy — maintaining nonborrowed reserves growth consistent with its monetary objectives — leaves the money market free to reflect the demands, and interest rate expectations, of those who use the market. Market participants are as avid a group of Fed-watchers as the banks. They follow every rise and fall of the money supply, and watch the trading desk carefully, hoping to distinguish dynamic from defensive elements whenever the desk intervenes, or fails to do so. Banks and international corporations transmit the effects quickly to dollar markets abroad. Foreign exchange traders also assess the implications of interest rate changes for the dollar's value relative to other currencies.

The transmission of monetary policy to the capital market for debt and corporate shares is less predictable than it is to the money market. A one percentage point increase in the Federal funds rate will usually result in a roughly comparable increase in other short-term interest rates, in part because the daily cost of financing dealer inventories will rise by a similar amount. But insurance companies, pension funds and others that invest in intermediate- and long-term securities increasingly seek rates of return on their investments that they expect to outpace inflation in the years ahead. In forming expectations of inflation, long-term investors take into account the scale of potential fiscal deficits and the credibility of the Federal Reserve's efforts to achieve its monetary growth objectives (see Chart 4).

Chart 4 The Markets for Reserves, Money, and Capital



Both borrowers and lenders keep moving between the money and capital markets so that the linkage between short- and long-term interest rates can flex considerably over the business cycle. Higher short-term rates often make it painless for investors to defer commitments to long-term securities. On the borrowing

side, businessmen may rely heavily on short-term financing for capital spending, as well as working capital, in periods of rising interest rates. Once they think that the cyclical peak in interest rates has passed, such borrowers try to fund their obligations with long-term issues.

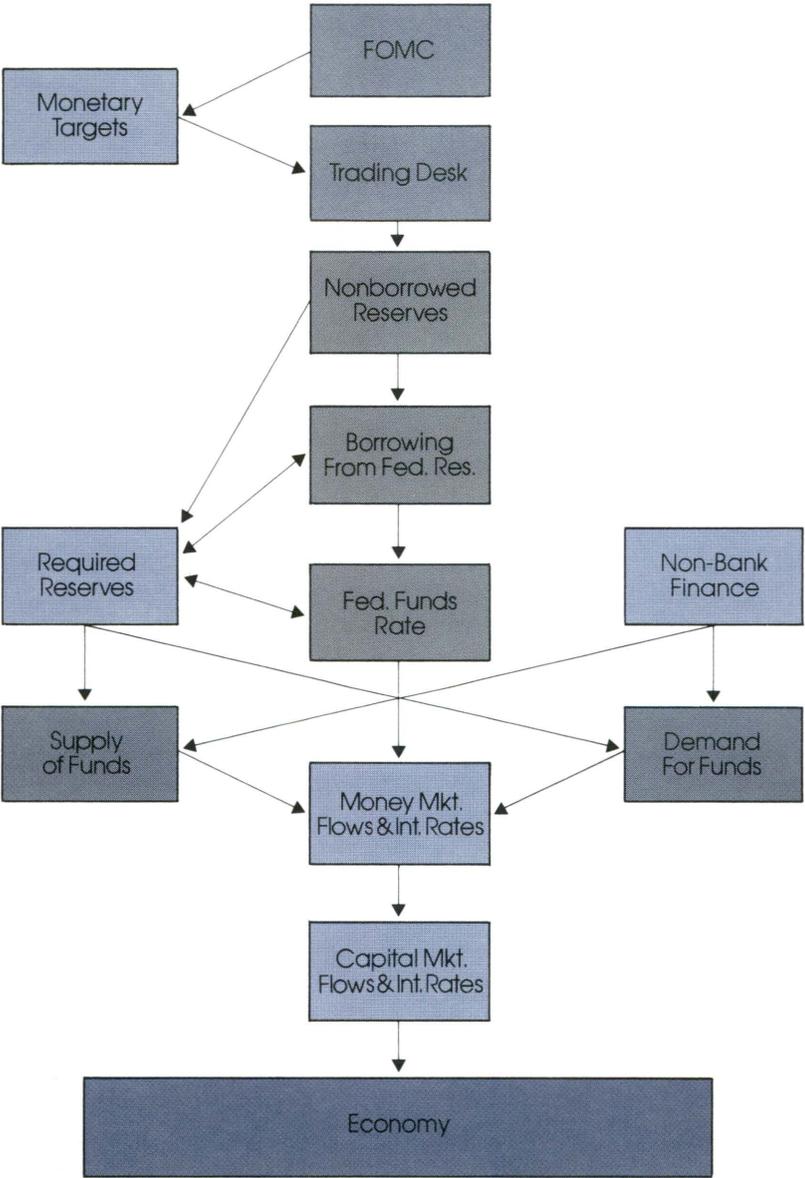
The Economic Impact

How then does monetary policy which affects money growth and credit flows with a lag, influence production, employment, and prices with still further lags? Some analysts, often identified as monetarists, expect changes in the money supply itself to have a strong, and reasonably predictable, impact on economic activity. Consumers and others, in this view, increase spending on goods and services when money balances grow more rapidly than they desire; they cut back on outlays when money balances fall below desired levels. The actual interactions within the economy may be complex, but the relation between money and economic activity is sufficiently reliable that controlling the money supply is seen as a powerful tool for promoting society's economic goals.

Others employ more complex models of the economy, in which financial flows and interest rates interact with monetary growth to affect production, prices, and the balance of international transactions. In this version, monetary policy in the United States influences real economic activity by affecting (1) the cost and availability of credit for business spending and for state and local government capital outlays, (2) the net worth and spending of consumers, and (3) supply and demand in the housing industry. U.S. monetary policy also exerts expansionary or restrictive effects on the world economy, which feed back to the demand for U.S. exports (see Chart 5, page 15).

Whatever their own theoretical or visceral model of economic processes, Federal Reserve officials develop their policy prescriptions in terms of society's main concerns for the economy's performance. In the first two decades after World War II, they sought to shift policy's emphasis over the business cycle. Whenever recessions led to higher unemployment, policymakers acted to spur economic recovery; whenever buoyant aggregate demand threatened an acceleration of price inflation, they acted to restrain expansion. The very success of national economic policies in moderating recessions eroded the discipline previously exerted on business and consumer decisions by the chastening memories of the 1930's. In the 1970's, official policies, pri-

Chart 5 Monetary Policy and the Economy



vate decisions, and external events gradually made inflation the principal perceived obstacle to real economic growth and the amelioration of social conflicts. By the end of the decade, the Federal Reserve was struggling to achieve credibility for its declared policy of lowering the growth rates of money and credit over a succession of years to reduce inflation and reverse the inflationary expectations built up over more than a decade. With public confidence at low ebb in the ability of policymakers to fine tune the economy, the Federal Reserve embraced a strategy of supplying nonborrowed reserves consistent with its annual monetary objectives to underscore its long-term commitment to reducing monetary growth and inflation.

Such an approach attempts to maintain a steadiness in monetary growth, on which all participants in the economic process can count. Since monetary growth both influences, and is influenced by, economic activity, it is difficult, if not impossible, to keep monetary growth steady without more prescience about future events than economists reliably can provide. While a reserve-oriented approach does not assure steady monetary growth from quarter to quarter, it allows interest rates to respond to changes in monetary growth, whether they reflect changes in society's asset preferences or in the pulse of economic life. Policymakers must still judge the extent to which these automatic responses are to be reinforced, or muted, by other means.

The monetary policy cycle is hard to divorce from the business cycle in practice, however desirable that may be in theory. When the economy turns sluggish in times of recession, both business and consumer demand for money and credit tend to fall with economic activity. Business credit demand slackens as businessmen meet an enlarged share of current orders from inventory rather than from new production. As unemployment rises and income growth diminishes, the increase in consumer deposits also slows. The Federal Reserve's maintenance of reserve growth in these circumstances causes short-term interest rates to retreat from the cyclical peaks reached earlier, when credit demand and the economy were strong. As rates come down, and the fall can be quite sharp if the economy is really weak, small time and savings deposits at banks and thrift institutions typically begin to grow more rapidly. Growth in currency and checkable deposits may continue quite sluggish at this point.

With their costs of deposits falling, financial institutions usually repay loans and rebuild depleted liquid assets. The decline in short-term rates below long-term rates also encourages an increase in lending commitments — increasingly with mortgages that afford the lender some protection against future increases in the cost of his liabilities. Home buyers find credit available on better terms. Home building increases along with associated demands for labor, materials, furniture and other durable consumer goods. Businesses typically respond to the increased availability of longer term credit by refinancing the short-term debt built up earlier. Banks and other financial institutions also buy Treasury securities heavily, financing enlarged Federal deficits, which help maintain aggregate demand in recessionary periods.

The economy typically begins to recover when businesses cease drawing down inventories, and when credit-sensitive industries begin responding to the flow of new orders that follows an increase in credit availability. The decline in interest rates accompanying recession and monetary ease usually prompts investors to bid up stock prices in anticipation of better business earnings. Partly because of the resultant increase in net worth, consumers spend more freely. Rising employment and incomes have even stronger effects in the same direction. Businessmen respond to the quickening pace of activity by adding to inventories in the first instance, and later by stepping up spending on new plants and equipment. Expanded foreign lending by U.S. banks and other lenders of dollars contribute to higher production and income abroad.

At some point the monetary and credit demands generated in the recovery-expansion phase typically push money supply growth above the ranges contemplated by the Federal Reserve. The central bank has to allow such demands to exert prompt upward pressure on interest rates, if it is to maintain the credibility of its long-term strategy for reducing inflation. If monetary or economic growth is strong, it may have to reinforce the automatic upward pressure on rates by raising the discount rate or taking other measures. Higher market interest rates begin to attract funds from the passbook accounts of banks and thrift institutions, and raise institutional costs on market-related six-month certificates. Prudence usually dictates a slower pace for loan commitments. Demand from home buyers also slacks off as mortgage rates — and monthly payments — increase. Housing

starts decline. The rise in interest rates tends to affect consumer spending, partly through adverse effects on corporate stock prices and hence wealth. Higher interest rates may spur increased saving but inflationary fears can also spur consumers to spend rather than save.

In the credit markets businesses compete aggressively for funds when capital spending and inventory building outpace the flow of internal funds. The strength of private demands more than compensates for the decline in the Treasury's credit requirements as its receipts rise and anti-cyclical spending falls. State and local governments find financing of long-term projects more expensive and harder to come by. In time, business cuts production to restrain inventories, as interest rates rise and the outlook for sales dims. The money supply and economy turn sluggish, setting the stage for a policy shift away from restraint.

In practice, the transmission of monetary policy to the real economy is less predictable and dependable than such simplified scenarios suggest. The growth of money itself can be an ambiguous guide to the leverage policy is exerting, because of the feedback to money demand from the economy. Moreover, various measures of money may be affected differently by the interest rate changes set in motion by the monetary control process. High interest rates provide incentives to economize on M1, currency and checkable deposits, and to switch toward those deposits in the more broadly defined M2 that bear market interest rates. How should the Federal Reserve respond when M1 falls below its growth objectives while M2 exceeds desired levels? Does the relation between long-term interest rates and recent rates of inflation provide additional information on whether monetary policy is expansionary or restrictive? Policymakers approach such questions with humility, but recognize that policy doubts in an inflationary era must be resolved on one side until a lasting reduction in inflation can be achieved.

2

Developing Monetary Policy Strategy

The Federal Reserve System is a peculiarly American institution — blessed with checks and balances intended to restrain the exercise of power, yet fully capable of effective leadership in making monetary policy. The Board of Governors in Washington dominates the organizational structure, overseeing 12 Federal Reserve Banks, which move money and Treasury securities around the nation, provide banking services to the Federal Government and supervise a substantial number of commercial banks. The Board consists of seven members, each appointed by the President and confirmed by the Senate to terms lasting 14 years. The chairman of the Board serves a four-year term by Presidential appointment, while serving also as a Board member.

Together, the chairman and other governors are solely responsible for one of the three major instruments of monetary policy. Within the limits authorized by Congress, they establish the ratios of required reserves to deposits that depository institutions must maintain.¹ The Board also exercises effective control over the second major policy instrument, the discount rate charged by the regional Federal Reserve Banks on loans made to depository institutions in their district. The boards of directors of the individual Reserve Banks are charged with establishing the rate, but the Board of Governors has power to “review and determine” the rate ensuring that its judgment will prevail. Finally, the Board’s seven members serve on the 12-member Federal Open Market Committee (FOMC). That body controls the most flexible policy instrument for influencing economic activity — open market operations in Treasury securities and other instruments.

The Goals of Policy

The Federal Reserve System is a creation of the Congress, which is constitutionally responsible for monetary policy. Monetary policy, of course, is only one important part of national economic policy. The Full Employment and Balanced Growth Act of 1978 calls for the President, early in each calendar year, to establish “annual numerical goals for employment, production, real income, productivity, and prices” for each of the five years beginning with the current year. The President also is required to

¹*The Board also exercises regulatory power over bank holding companies and other commercial bank activities. The chairman of the Board is a voting member of the Depository Institutions Deregulation Committee, which is charged with phasing out interest rate ceilings for savings-type deposits.*

incorporate programs and policies in his budget to reduce unemployment and inflation, and to achieve balance in the Federal budget over time. The President has authority to extend the original five-year timetable for reaching these desirable, but often hard-to-reconcile, goals.

Under the 1978 law, the chairman of the Board appears regularly before Congress to explain the Federal Reserve's policies as they relate to the President's program. He must report annually to the banking committees of the Congress by February 20 on the FOMC's objectives for monetary and credit growth in the current calendar year. The growth rates the FOMC sets are *intermediate* objectives, lying between the Federal Reserve's weekly operating targets for reserves and its ultimate goals for the performance of the real economy and prices. In judging Federal Reserve performance, the Congress is interested not only in how money and credit are behaving, but also in how successful monetary policy seems to be in fostering a healthy economy.

In his regular appearances before Congressional committees, the chairman of the Board articulates how monetary policy relates to the major economic challenges facing the country. In giving the central bank's strategy for dealing with inflation and economic growth, he contributes importantly to the public discussion that defines national priorities. The chairman has to defend the FOMC's choices and to explain deviations of growth from path when they occur. By July 20 each year, the chairman presents the FOMC's review of the current year's growth objectives, and also announces preliminary objectives for the next calendar year. By setting annual goals before the year begins, and reaffirming or revising them during the year to which they apply, the FOMC can develop and articulate a longer term strategy. One such strategy is the reduction of monetary growth rates over a number of years with a view to reducing inflation.

The current emphasis on quantifying monetary policy objectives evolved gradually. In the 1950s and 1960s the FOMC was content to specify only its directive to the trading desk, changing its operating targets as committee members thought necessary to promote the goals for the economy. While money and credit growth were often one factor influencing FOMC judgments, the committee did not set specific objectives for such growth. Its operational targets were framed primarily in terms of the free

reserves of member banks — i.e., the reserves such banks held in excess of their requirements, less their borrowings at the Federal Reserve discount window.² Free reserves relate closely to the Federal funds rate and other short-term interest rates; this was, in effect, an interest rate approach to monetary control. Later, the FOMC switched to the Federal funds rate explicitly as its instrument for seeking control.

In this format the FOMC sought to anticipate the economy's performance and adjust its operational instructions in advance, allowing for a lag of many months from the time it changed the desk's targets to the impact on spending decisions and economic activity. Monetary policy proved quite effective when forecasts were good and policymakers were prepared to change the Federal funds rate objective sufficiently. Still, the focus on short-term interest rates tended to provide inadequate guidance to the public — and perhaps to the Committee itself — about the degree of stimulus the central bank was exerting in recessions or the restraint it was exercising during booms. Critics insisted that the Committee would be better served if it focused less on interest rates and used one or more measures of money as both indicators and objectives of monetary policy.

The FOMC moved in a modest way in 1966 to allow the manager of the System open market account to modify bank reserve conditions — and the Federal funds rate — between Committee meetings. The so-called “proviso clause” subtly enabled the FOMC to specify in advance, movements in a proxy for bank credit that would trigger an automatic response whenever the proxy deviated from expectations. This conditional instruction helped overcome the inertia otherwise inhibiting changes at meetings, which were then only three weeks apart. But the proviso clause did not, of course, prevent policy mistakes. Monetary and credit growth could still become excessive, as occurred in the wake of the 1968 effort to restore better fiscal balance through a tax surcharge.

A new phase began in January 1970, after inflation and monetary restraint had raised interest rates to new peaks, and the economy had begun slowing. In this situation the FOMC gave priority in its operational instructions to reviving credit growth.

²Free reserves represent the amount by which banks' nonborrowed reserves exceed their required reserves. When nonborrowed reserves fall short of required reserves, free reserves become negative, and are referred to as net borrowed reserves.

It authorized the System manager to vary the Federal funds rate within prescribed limits between meetings to further this objective. In time the FOMC also switched its primary attention to M1 from bank credit, and extended its policy horizon to six months.³

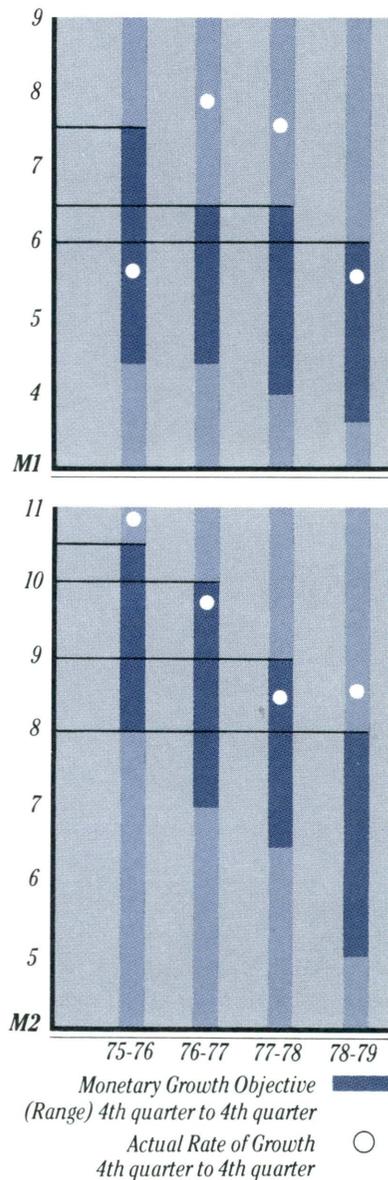
The committee's directives to the desk continued to focus on bank reserves and money market conditions. But the goal was reasonably steady growth in the monetary and credit aggregates, with principal attention given to M1. The committee soon learned that pursuit of M1 required modeling the demand for money and forecasting the economic forces that would affect money demand over several quarters ahead. Effective control of money depended on being sufficiently confident of these relationships to change the Federal funds rate well in advance of projected developments. Lacking such confidence, committee members often temporized, so that economic expansion at times got ahead of the committee, as in 1972-73, resulting in undesirably rapid monetary growth with attendant inflationary pressures.

In 1975, emerging from the most severe recession of the post-war era, Congress endorsed and carried further the quantitative emphasis. In a joint resolution it called on the Federal Reserve to report quarterly to the congressional banking committees on the growth anticipated in money and credit aggregates over the ensuing 12 months. Under its provisions the chairman testified on both the state of the economy and the FOMC's past record and present monetary objectives. Alternating between the House and Senate committees, these sessions underscored some of the difficulties inherent in selecting, and pursuing, a growth rate for money that was uniquely appropriate to the economic performance desired. For example, the banking committees were concerned in the summer of 1975 that the FOMC's objective of 5 to 7 percent growth in M1 over the next year would prove inadequate to finance a strong recovery from the 1974-75 recession. In fact, M1 grew at only a 5.4 percent rate in the year ended in the second quarter of 1976. Yet real economic growth was strong while inflation slowed more than most forecasters had expected.

The quarterly congressional sessions also brought out the basic conflicts involved in managing monetary policy in a democratic society. On one side was the desire of many to foster rapid economic growth even at the risk of adding to inflation, a policy

³M1 was then defined to include bank demand deposits and currency in the hands of the public.

Chart 6 M1 & M2:
Performance vs Objectives
(Percentage Rate of Growth)



that many politicians and economists associated with keeping interest rates as low as possible. On the other was the desire of the Federal Reserve and many others to dampen the rate of price inflation — a policy that required lowering rates of monetary growth and permitting interest rates to rise when the economy expanded.

The FOMC gradually lowered its monetary growth objectives over several years. But actual growth often exceeded its goals — particularly for M1 in 1977 and much of 1978 (see Chart 6, page 23). To some degree, the overruns resulted from the FOMC's decision to move forward each quarter the base from which monetary growth was measured. This “base drift” meant that rapid growth in money in one or two quarters did not automatically require slower growth in subsequent quarters. The 1978 Act's call for annual monetary objectives and a regular review process was intended to reduce this kind of slippage.

The FOMC also found it difficult to allow interest rates to rise sufficiently to restrain the acceleration of money growth. Repeatedly, both monetary and economic growth exceeded committee expectations. Committee members came to doubt that the Federal funds rate strategy, at least as it had been employed, remained an adequate approach to reducing money growth. In October 1979, with inflation a very serious threat and the credibility of its policy increasingly in doubt, the committee changed procedures to have the trading desk pursue a path for non-borrowed reserves consistent with desired growth in M1 and M2.⁴ Under this procedure, deviations in money from the committee's chosen path transmit pressure to interest rates automatically in the direction needed to bring money growth back toward the annual objectives.

The FOMC

As noted, the FOMC is responsible for adopting the annual monetary objectives to be pursued by open market operations. The committee consists of the seven governors and five Reserve Bank presidents. The chairman of the Board presides over the FOMC, while the vice chairman is traditionally the president of the New York Reserve Bank, which serves as the committee's agent in executing open market operations. The New York Reserve Bank president is by law a permanent member of the

⁴Until the aggregates were redefined in February 1980, M2 was defined as M1 plus time and savings deposits at commercial banks (other than large negotiable CDs).

committee, while presidents of the other 11 Reserve Banks serve annual terms on a rotational basis. Non-voting presidents attend each meeting and participate fully in policy discussions.

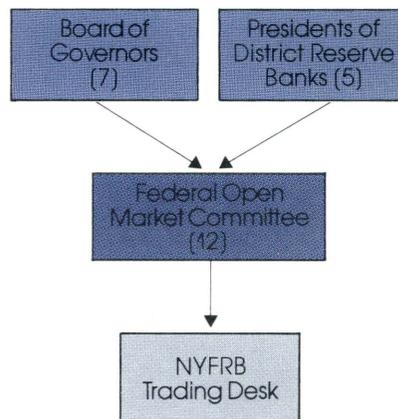
In its meetings in early February and early July, the committee adopts the annual objectives for money and credit growth to be reported to the Congress. These objectives are also reviewed at half a dozen other meetings during the year. At all eight meetings the FOMC adopts short-term instructions to the New York Reserve Bank for conducting open market operations during the six or seven weeks between meetings. Telephone consultations and votes by wire are used to amend the operating instructions as necessary between committee meetings (see Chart 7).

The presidents who are to be voting members are sworn in, effective March 1 each year. At its annual business meeting in March the committee chooses a senior Board officer as secretary. It also selects one senior officer of the New York Reserve Bank to be the manager for domestic open market operations, and another to be the manager for foreign exchange operations. The senior research officers of the Board and of the Reserve Banks represented on the FOMC are named as the committee's staff. The Board's staff provides the committee with its principal analysis of financial and economic developments and of monetary policy's interaction with them. The research staffs of the Reserve Banks serve as advisers to their respective presidents and as contributors to research aimed at improving monetary policy.

The FOMC meetings provide a forum for discussing the appropriate use of policy tools. Open market operations need to be integrated with changes in reserve requirements and the Federal Reserve discount rate. Accordingly, individual Bank presidents may comment at Committee meetings on the desirability of Board actions on the discount rate. The presidents often will report, too, on how businessmen, bankers, and economists in their district see the economic outlook and whether their directors favor a change in the discount rate. The governors of the Board are usually sparing in their comments, since they are responsible for acting on reserve requirements and the discount rate. Still the exchange of ideas at such times keeps policy decisions oriented toward common objectives.

The chairman may inform the presidents while they are in Washington about current developments with regard to economic and banking issues. The Federal Reserve chairman is often

Chart 7 Structure of the Federal Open Market Committee



invited by the President to participate in discussions of national economic policy. The chairman meets weekly with the Secretary of the Treasury, and periodically with the chairman of the Council of Economic Advisers and the director of the Office of Management and Budget. The chairman testifies frequently before the House and Senate banking committees, budget committees, and the Joint Economic Committee of the Congress; he is often in touch with congressional leaders on banking matters and legislation.

Since making monetary policy is a governmental function, policymakers need to know how decisions at the Federal level are likely to affect the economy. Such knowledge also helps each FOMC participant develop a well-rounded view of the Federal Reserve's role in national economic policymaking. Participants are themselves articulate spokesmen on economic policy issues — the governors in their own congressional testimony and extensive speechmaking, the Reserve Bank presidents as leaders in their regions.

As discussed more fully later, FOMC decisionmaking involves two stages: setting annual objectives for monetary and credit growth, and adopting operating instructions to the trading desk of the New York Reserve Bank. Typically, the chairman testifies before the congressional banking committees soon after the annual objectives are adopted — usually within a week or two. The committee publishes its operational directive after the intermeeting period to which it applies, together with a policy record, which summarizes the economic analysis presented at the meeting and the committee's policy discussions. The delay permits the staff to prepare, and the committee to approve, that policy record. It also avoids the abrupt effects that might follow a more immediate announcement of significant changes, permitting decisions to be implemented in an orderly and sometimes conditional manner.

The Policy Process

At its meeting in early February, the FOMC adopts a monetary policy strategy for the current year. It brings together different approaches to economic analysis, as well as the informed judgment of the 12 voting members and the 7 nonvoting presidents. The policy process stretches what economists know to the limit; the answers they give to key questions often vary with their analytical approach.

The questions policymakers want answered are straightfor-

ward enough. What are the likely economic consequences over the next two or three years of the FOMC's choice of particular rates of growth in the monetary and credit aggregates? Will gross national product (GNP), after adjustment for inflation, grow faster, or slower, than its trend rate of growth? Will employment rise more, or less, rapidly than the civilian labor force, and produce a decline, or rise, in the unemployment rate? Will prices tend to increase more, or less, rapidly than in the recent past? Will U.S. trade and payments with the rest of the world move nearer to balance? Will the dollar be steady in the foreign exchange markets? What would be the impact on production, employment, and prices of raising, or lowering, the growth of money and credit by one percentage point? And, if the economy behaves differently than expected, do the advisers expect the odds to favor a stronger, or a weaker, economy?

To answer these questions, economists at the Board and the Reserve Banks evaluate developments systematically within a theoretical framework of how monetary policy affects a dynamic economy. System economists are a diverse group when it comes to theorizing about this process, often disagreeing about the speed and strength of monetary policy effects and the best means of controlling the growth in money and credit. It may help flesh out some of the basic issues to sketch quickly two different analytical approaches. They share much common ground, but there are also significant differences between them.

One approach visualizes the aggregate income and output generated by the economy as the sum of the spending decisions of the major economic groups — consumers, businessmen, governmental bodies, and the rest of the world. The Board staff uses an econometric model developed along these lines for reference, when preparing forecasts for the FOMC. Monetary policy in this formulation exerts its major force through interest rates, abetted somewhat by credit availability effects. Open market operations seek to supply nonborrowed reserves at a rate consistent with the FOMC's monetary growth objectives. The banking system's demand for total reserves, interacting with this supply of reserves, produces changes in discount window borrowing and the Federal funds rate. A shortfall in bank demand for reserves in relation to supply, for example, will cause the Federal funds rate and other short-term rates to decline and result, with allowance for lags, in a rise in money supply, bank credit,

and the flow of funds to thrift institutions.

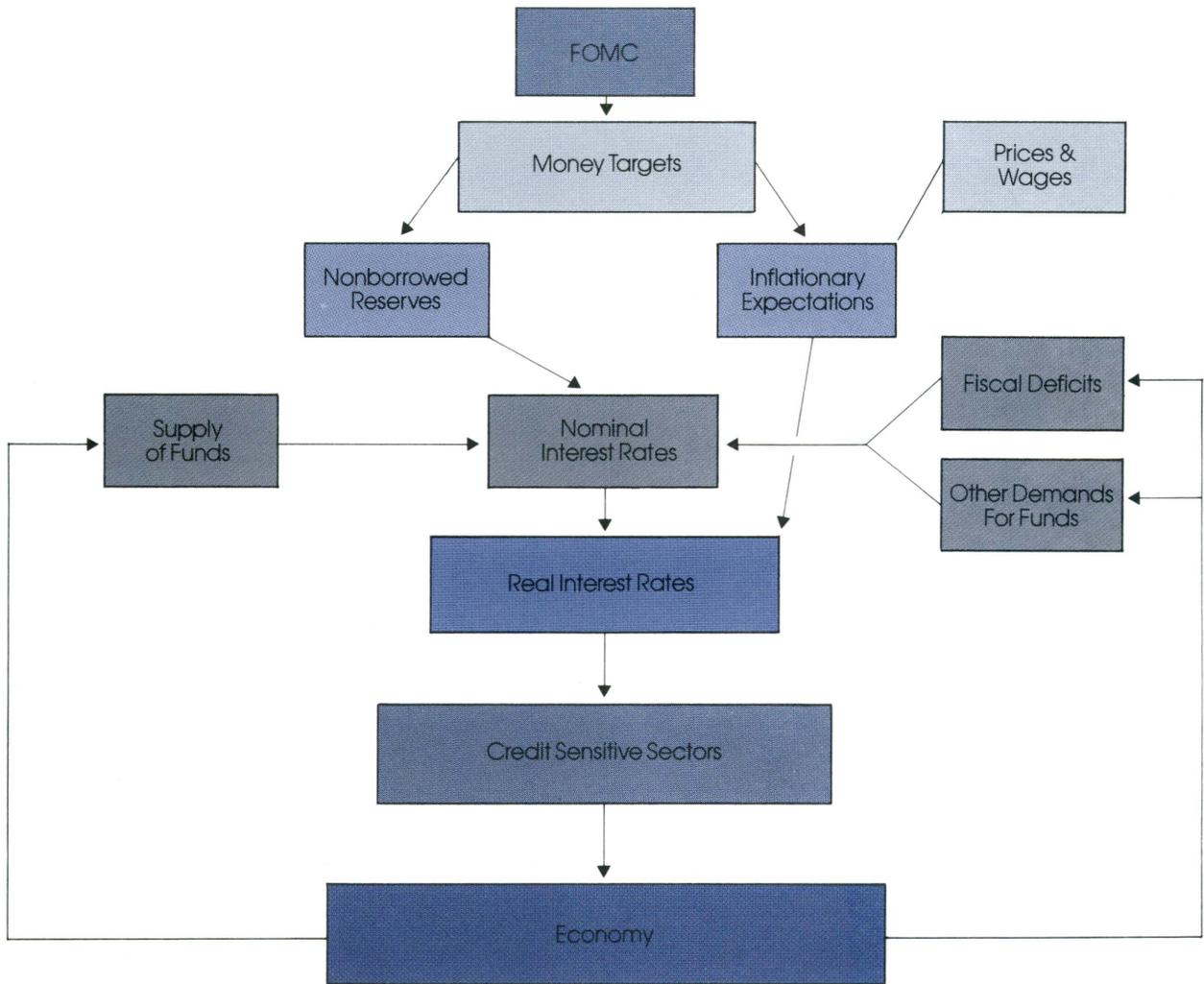
In this view, achieving desired rates of growth in money and credit is subject to considerable uncertainty because of the wide range of adjustments possible in investor portfolios. The actions of banks and other investors, however, lead in time to a decline in long-term interest rates and yields on corporate stock, which affect the cost of capital. Through the financial flows and spending decisions set in motion, monetary policy exerts leverage on the economy.

The large econometric model used by the Board staff simulates the economy through more than 100 equations, which utilize quarterly data on 10 major spending, pricing and employment sectors.⁵ Monetary policy influences both nominal interest rates and real interest rates, i.e., interest rates adjusted for inflationary expectations. The effect on rates and financial flows carries through in the model to consumer spending on automobiles and other durable goods, on nondurable goods and services, and on residential construction (see Chart 8, page 29). Other equations detail the forces influencing business spending on new structures and equipment, and the construction of multifamily housing. Interest rates on municipal securities influence state and local capital expenditures to some degree. Fiscal policy — the tax and spending decisions of the Federal Government — exerts powerful lagged effects of its own. While interest rates provide the driving force for monetary policy in the model, the staff can determine the profiles of interest rates consistent with different rates of monetary growth.

Such a model underscores the importance of projecting the future behavior of consumers, businessmen and government in order to set an appropriate course for monetary policy. If one underestimates government spending or consumer demand at a particular income level, then the demands for money and credit in financial markets are likely to be larger than anticipated at each level of interest rates. The FOMC's instructions to the desk constitute a supply schedule for nonborrowed reserves. But growth in the demand for money and credit can be so strong that the rise in interest rates generated automatically may not be sufficient to bring the growth in the monetary aggregates back in line. Monetary growth can still exceed the FOMC's objectives for

⁵See *George G. Kaufman, Money, the Financial System and the Economy (Houghton Mifflin, Chicago, 1981), Chapter 15, pp. 398-407.*

Chart 8 Transmission of Monetary Policy I



a considerable period. Conversely, if changes in consumer attitudes or business inventory policy lead to weakening demands for money and credit, growth in these aggregates will probably fall below the Committee's goals, possibly for some months. Even

with a supply-oriented reserves strategy, policymakers still have to decide whether to speed up the monetary adjustment process by changing reserve paths, the discount rate or reserve requirements.

Another school of economic analysis seeks to finesse some of the difficulties of economic forecasting by concentrating on money as the driving force of monetary policy. The monetarists see the FOMC as exerting strong direct effects on spending, employment, and prices by varying the rate of growth in money — in either the M1 or M2 definition. Consumers are seen as rapidly adjusting their spending to a change in the rate of monetary growth. Increased money balances lead consumers to spend for goods and services in order to restore money holdings to a desired relationship to income.

Monetarists do not believe that economists know enough about the structure of the economy or how expectations influence behavior to build satisfactory large scale models. They prefer instead to concentrate on a few key relationships. In this approach, answers to most of the key policy questions are sought with a small model driven by money, fiscal policy, the rate of utilization of the labor force, and the economy's productive potential. The staff of the St. Louis Reserve Bank has incorporated such an approach into an 8-equation quarterly model. Compared to the Board's more complex structural model, this model suggests that changes in monetary growth exert stronger and more immediate effects on output, employment and prices. The monetarists expect only a modest feedback from the economy to the demand for money and hence, visualize monetary growth as essentially supply determined. In their view the money supply can be controlled with considerable precision by specifying the rate at which the total reserves of the banking system are allowed to grow. Other monetarists prefer to focus on the monetary base, which adds currency in circulation to total reserves.

One of the key arguments between other economists and the monetarists is over how quickly the Federal Reserve can control monetary growth. Nonmonetarists, believing there is considerable feedback from the economy to money demand, consider week-to-week and month-to-month variability in money growth desirable, even inevitable, in a market economy, which economizes the use of money. Many monetarists find disturbing the size of monthly and quarterly variations in money growth, believing they reflect inadequate control procedures, which can

undermine the attainment of monetary goals. Monetarists generally espouse institutional changes they believe will force changes in bank and customer behavior more rapidly than in the past; they believe control of money within a month or two is both feasible and desirable. The procedures adopted in October 1979 went a considerable distance in the monetarist direction by establishing a supply schedule for nonborrowed reserves. But judgment remains important in adjusting one or more of the three policy instruments to quicken portfolio adjustments.

2. *The February Meeting*

a. *Preparation.* The FOMC's policy process begins with the preparation of three major documents to be circulated a few days before the meeting to those who will attend. The *green book* presents both the Board staff's detailed appraisal of the forces currently at work in the major economic sectors and financial markets, and a summary analysis of the economic outlook over the next two or three years. The *red book* gives a roundup from the 12 Federal Reserve Banks of regional business and professional views of current and prospective developments. Finally, the *blue book* provides a Board staff menu of alternative paths for the key monetary aggregates over the whole year when these are being considered in February and July. At each meeting, it sets out alternate scenarios for short-run operations.

In February, the FOMC members have in hand the green book's quantitative forecasts of about 40 key economic and financial variables through the current and following calendar year, assuming monetary growth at the rates tentatively adopted the previous July. While the forecast draws on the historic relationships contained in the structural econometric model, making the forecast is essentially a judgmental process, in which the senior staff incorporates its current estimates of Federal budget impact and of how other sectors are likely to behave. At the meeting itself, the staff presents alternative scenarios of how changing the monetary growth objectives from those adopted the previous July would affect the economic outcome. Such scenarios usually involve forecasting key economic variables including real GNP, unemployment and prices two to three years into the future. The blue book outlines alternative families of growth rates for M1, M2, M3, and bank credit and the expected implications of different choices for the income velocity of money.

In the blue book prepared for the February meeting, the staff focuses on the financial relationships linking specific growth

rates for money and credit to the market for bank reserves and interest rates. The staff advises the committee on the likely interest rate consequences of pursuing in the current year the monetary growth rates adopted the preceding July. Typically, the analysis will include the projected behavior of the rates on Federal funds, 3-month Treasury bills, corporate bonds and mortgages. To aid its judgment, the staff draws on simulations of the money demand of the quarterly model and of a more elaborate monthly model of the process of financial portfolio adjustment. Judgment has become even more important in recent years because of the rapidity of institutional change. In the blue book the staff also provides the Committee with optional specifications for determining the nonborrowed reserve path to be pursued by the trading desk between meetings. (The FOMC's consideration of such options is discussed in Chapter 5.)

Before every meeting, each Reserve Bank president and his staff go over the array of policy options on which he will comment at the committee meeting. His senior research officers may present their own review of economic and financial developments, delineating their differences with the Board staff's economic outlook. At the New York Reserve Bank additional attention is regularly given to the international economic situation, the balance of payments and the foreign exchange markets, as well as to Treasury borrowing and other demands falling on the financial markets. Preparatory policy discussions center on the same issues that will be addressed at the FOMC meeting, especially the implication of different monetary growth rates for employment and inflation over the current and following year. The presidents and their staffs then turn to the growth rates to be sought in the aggregates over the next several months, and the likely implications for interest rates, given the projected demand for money.

b. *Staff presentation.* When the Committee convenes, the meeting necessarily has to be rather formal if the seven Board members and 12 presidents are going to be able to speak to the issues before them. The committee first hears a report by the manager for foreign exchange operations on developments in the currency markets and acts on any recommendations he has regarding foreign exchange operations. Then the manager for domestic open market operations reports on trading desk activity under the committee's instructions since the last meeting. The committee has the opportunity to raise questions about

operations before deciding whether to approve them or not.

The Board staff summarizes its forecast of economic and financial developments in both the current year and the year following, on the assumption of monetary growth at the rates tentatively adopted the previous July. These estimates are reviewed in relation to the Administration's own estimates of prospective output, employment and prices. The Board staff highlights the major forces influencing personal consumption expenditures, business fixed investment, housing, and government spending at present. The analysis may touch on the extent to which demographic factors or inflationary expectations are boosting consumer spending and home construction. Business capital spending plans are evaluated, and differences with the Administration's outlook for the Federal budget are pointed out. The staff projects employment, trends in labor productivity, wage settlements, and the expected impact of these on unit labor costs and prices. The international staff presents its views of the output, growth and price performances expected abroad in relation to U.S performance, and the implications for the balance of payments and the dollar's exchange rate.

The staff goes on to outline the credit flows and interest rates associated with the tentative aggregate targets and projected economic growth, as well as the expected behavior of prices and unemployment. To assist in the FOMC's consideration of alternative growth rates for the aggregates, the staff also presents model simulations of what the effects would be on prices, unemployment and interest rates of changing the rates of monetary and credit growth from the preliminary targets set the previous July.

The staff director for monetary policy leads off the discussion of the policy options facing the committee. On the one hand, he is concerned with the reasonableness of the relationship between money growth at the pace sought by the committee and the projected behavior of the economy. Does the growth of money appear adequate to finance the projected growth of GNP at current prices, without implying a rate of turnover, or income velocity, of money that appears unusual compared to its behavior at similar points in other business cycles? The staff director does not assume that money and GNP will grow at linked rates over a two-year period, however stable the relationship, and velocity, may appear over longer periods. His presentation describes the way the monetary and real components of the staff's outlook fit together. If the relationships among different monetary aggre-

gates has changed since the previous July, he gives the staff estimates of how the committee may need to change the growth ranges it adopts in order to maintain internal consistency.⁶ On the other hand, the staff director also advises the FOMC on the interest rates expected to result from pursuit of the aggregate objectives. Does he foresee a change in the demand for money at the income levels projected? Or, stated differently, are interest rates likely to rise more, or less, than the econometric models suggest as the desk pursues the committee's monetary objectives? Against this background, the staff director presents the pros and cons for adjusting the FOMC's objectives for the monetary aggregates from those tentatively adopted the previous July.

c. *Adopting an FOMC Strategy.* The chairman calls for a general discussion of the ranges of money and credit growth to be adopted for the current calendar year. Each of the governors and presidents who speak usually gives his personal assessment of the economic outlook before spelling out the growth objectives he or she considers appropriate. The policymakers bring a wide range of business, academic, and governmental experience to these deliberations. Different intellectual approaches to monetary policy are as prevalent on the committee as within the research staffs that serve its members. Policymakers are likely to be more concerned than their staffs with policy's relation to the political process through which society shapes its goals and programs. Collectively, they assess not only what policy is appropriate, but also the degree of freedom the central bank has to pursue its chosen policy within the conflicting pressures stemming from the public, the Congress, and the Administration. The stature of any central bank depends primarily on how well it employs its own freedom of action to build a record deserving

⁶*The Federal Reserve substantially revised its definitions of money in early 1980 to include nonbank liabilities serving the different functions of money as well as the bank liabilities previously included in the M1 and M2 definitions. M1, the definition generally considered closest to the medium-of-exchange function of money, reappeared as M1A, closely akin to the old M1. M1B, slated to become the new M1, consisted of M1A plus other checkable deposits, principally in accounts allowing negotiated orders of withdrawal (NOW) and automatic transfers from savings (ATS) at banks and thrift institutions, and share drafts at credit unions. The new M2 was expanded. It includes M1B, time and savings deposits at all depository institutions, overnight repurchase agreements (RPs) at commercial banks, overnight Eurodollar deposits at the Caribbean branches of U.S. banks, and shares in money market mutual funds. The new M3 includes the new M2, large denomination time deposits (CDs) at all depository institutions, and term RPs at commercial banks and savings and loan associations.*

public support. The central bank also has a responsibility to make known, to the extent possible, its views on fiscal policy, which may significantly affect its ability to carry out an effective monetary policy.

In discussing the economic outlook, policymakers usually focus on those elements that suggest a stronger, or weaker, outcome than that projected by the Board staff. Often these differences reflect special knowledge of housing, business capital spending, or the economic strength of a particular section of the country. Many times they result from different readings of how the consumer, business or government sectors are behaving. Those who see interest rates providing the primary thrust of monetary policy tend to give particular attention to the sectors most sensitive to interest rate changes. Those who lean toward the monetarist analysis are likely to be influenced strongly by the recent growth of money in the M1 or M2 definition. Each policymaker's estimate of the outlook is subtly influenced by his or her personal views as to the appropriate, or achievable, balance between price stability and economic expansion. Those who see price stability as necessary to sustained economic expansion may concentrate on whatever elements could add to inflationary pressures. Conversely, those who are concerned that economic weakness could undermine a sustained expansion, may stress measures or sectors that are slowing down. While the economic assessments most often reflect changing individual views of the outlook itself, sometimes they also involve differing perceptions of how to achieve the country's goals.

Each policymaker considers the annual growth objectives against the economic outlook as he sees it. Since 19 principals participate in the meeting, the discussion tends to focus on the M1 and M2 definitions of money, which are the most meaningful for short-run operations. Members tend to leave it to the staff to see that the M3 and bank credit ranges presented in the blue book are modified to conform to the FOMC's M1 and M2 choices. Participants approach their choice of a longer term strategy, mindful of how the aggregates have performed in relation to past objectives. In 1978, for example, there was some desire to continue lowering the ranges for monetary growth as evidence of the FOMC's commitment to reduce inflation. Simultaneously, the fact that M1 in particular had overshot the FOMC's objectives for an extended period made the credibility of such a move suspect. The committee elected to leave the range unchanged.

In making policy choices, committee members know the difficulties the staff confronts in specifying the relation between money growth and nominal GNP, on the one hand, and the relation between growth in bank reserves and money, on the other. An individual policymaker may agree that the staff's projection of the economy's performance is both reasonable and desirable. The member may still conclude that money will have to grow more rapidly than the staff judges necessary, because he does not expect the same shift in the money demand function as the staff. Another member might approach the same point differently. He or she might believe that a rise in interest rates, which the staff associates with achieving the money growth objective, will keep the economy from attaining the economic performance the staff projects and the committee member wishes to see. At times members will agree essentially with the staff's formulation of interest rate, monetary and GNP relationships, but want to speed up monetary growth because they feel that excess capacity is sufficient to warrant more rapid economic expansion. At other times, individuals may see the slowing of the monetary aggregates as an opportunity to reduce the growth ranges adopted as policy objectives. Others may be apprehensive that allowing shortfalls in growth to persist will lead to a recession, and perhaps to an overly stimulative fiscal policy.

A starting point for the committee's deliberations is the blue book formulation of two or three families of mutually consistent growth rates for M1, M2, M3, and bank credit. Each participant either signifies agreement with one of these options or proposes different ranges, typically for M1 and M2. Sometimes speakers will expect the relationship between M1 and M2 growth to differ from the staff's estimates. Some may express a desire for widening the growth ranges because of their uncertainty about the behavior of the demand for money. All are concerned about the relation between past performance and the new annual objectives.

The committee's wide ranging discussion underscores the complexities and uncertainties affecting decentralized decision making in a flexible and efficient market economy. Still the committee must decide, recognizing that it may neither achieve the monetary and credit objectives it sets, nor the economic performance its members wish. When the voting members give the actual growth ranges they favor for the calendar year, their views are often closer than one might expect from the diversity of their

analyses. After the decision, the chairman can usually present ranges for M1, M2, M3 and bank credit that will command majority support. Further discussion indicates whether a modification of the chairman's proposal will pick up additional support. The committee's decisions emerge with considerable give and take along the way. There is a strong desire to be as united as possible in setting the year's objectives. The agreement is on the growth rate ranges themselves. Members of the voting majority may well entertain different expectations of what achievement of those objectives will mean to the economy's performance.

The members still must develop instructions to the trading desk in New York for pursuing the desired objectives. Before going on to the FOMC's operational strategy and how it is carried out in Chapters 5, 6, and 7, it will be helpful to describe the commercial banking system and the money market, which together carry forward monetary policy's influence to affect both financial and economic decisions.

3

Commercial Banks — Managers Of Risk

Commercial banks transmit monetary policy to the money market and the economy. They also respond to the demands other economic players make on a dynamic financial system. Aided by the Federal Reserve's provision of reserves for seasonal purposes, the banks provide credit, currency and bank deposits on short notice, enabling their customers to make the myriad payments of modern economic life. Their demand deposits rise by billions of dollars one week when payment needs expand, only to fall back in the next, as dollar recipients pay bills of their own or move into interest-earning assets in the money market. Yet the very flexibility that permits daily and seasonal demands for funds to be accommodated readily can lead to problems. The banking system's responsiveness to the demand for its services can lead to excessive growth in money and credit in boom times, or to inadequate money and credit growth in times of economic slack. The Federal Reserve must continually monitor bank behavior as it pursues its own annual objectives for money and credit growth.

The Business of Banking

Bankers face the challenge of managing profitably a large number of interlocking financial businesses in a society of changing needs and tastes. Economists may focus analytical attention on the deposits of commercial banks and the relation between money and economic activity. Bankers themselves concentrate on borrowing and lending funds, and providing investment management and other financial services. They actively market deposit and payment services and then apply the funds attracted to make loans and acquire mortgages and securities. Banks compete actively for both funds and loans with each other and other institutions in the financial markets. Government regulation and supervision provide a framework intended to assure depositors that individual banks have the unquestioned ability to repay their obligations as they fall due.

Commercial banks are at the heart of the financial system, distinguished by the breadth of their involvement in the deposit, loan and other financial markets. Until recently, they had a near monopoly of the checking accounts that serve the community as a principal means of payment. Banks provide retail accounts to consumers and small businesses, payroll and check collection services to businesses of all sizes, and foreign exchange facilities to those who need to make payments in other currencies.

Through their retail branches, banks attract a major share of the nation's savings deposits, competing with credit unions, savings and loan association, and savings banks within the limits allowed by law and interest-rate regulation. The banks also compete for funds in organized markets — buying Federal funds from other financial institutions, borrowing through the sale of Government securities under repurchase agreements, and issuing negotiable certificates of deposit (CDs) for 14 days or more. They also bid for Eurodollar deposits through offshore branches and international banking facilities set up in the United States.

In the loan markets, major banks traditionally have emphasized business lending. For many years most loans involved short-term lending to finance inventories, seasonal farm credit needs, and foreign trade, either directly or through the acceptance of drafts drawn on banks (bankers' acceptances). Product lines have broadened since to include term loans of up to ten years, and complicated leasing deals with business — ranging from small domestic enterprises to international companies building new plants in overseas markets. In business lending the banks compete with finance and insurance companies as well as the commercial paper and corporate bond markets.

Some banks, including major international institutions, concentrate their energies on serving the needs of the business sector. Such "wholesale" banks may make only limited efforts to compete with those that provide "retail" deposit and loan services to consumers through extensive branch networks. For many banks consumer installment loans and credit cards provide major outlets for available funds — in competition with finance companies and other institutions. Banks are also a large factor in home improvement loans and home mortgages, which are the primary activity of savings banks and savings and loan associations. Mortgages on business and commercial property also are important. Commercial banks are large scale underwriters of, and investors in, the securities issued by the Federal Government, federally sponsored credit agencies, and state and local governments. Since the 1960's loans to the overseas operations of U.S. companies and to foreign businesses and governments have grown rapidly, from both the home office and overseas bank branches. Conversely, agencies, branches and subsidiaries of foreign banks constitute a large presence in the United States. For the most part, they operate in the money and

foreign exchange markets, and lend money to domestic corporations. A few also have entered the retail side of the banking business on a large scale.

When operating in deposit and loan markets, commercial bankers must manage a variety of risks, keeping in view near-term profitability, longer run growth, and capital adequacy. There is a continuing temptation to borrow more funds whenever prudent lending or investing can increase the return to the shareholders. But leveraging bank capital more heavily can worry stock analysts and shareholders if earnings appear likely to become more variable.

Bank supervisors study in depth each bank's effectiveness in managing risk. Reporting to each bank's board of directors, they note particularly any areas that need attention and give their own assessment of the adequacy of the bank's capital to finance growth and assure the safety of deposits. The opinions of bank supervisors gain extra weight from their power to approve new branches, mergers, and bank holding company ventures into such closely related financial activities as mortgage and finance companies.

Large depositors as well are vitally interested in the capital base of the banks and their prudence. The deposit insurance of the Federal Deposit Insurance Corporation covers only \$100,000 per depositor. If banks begin to have earning troubles, they may experience difficulty in rolling over outstanding CDs, or borrowing from other banks in the Federal funds markets. In the extreme, as in the case of Franklin National Bank in 1974, the run-off of deposits can contribute to the rapid demise of a large institution.

Banking Risks

Bankers have a number of different risks that have to be managed. First, there is the *credit risk* — the risk that the borrower will be unable to repay his loans. A primary function of a bank loan officer is to evaluate this risk — for loans made to individuals, businesses, or foreign government agencies. Lenders cannot expect, of course, to avoid losses entirely. The task of management is to lend prudently so that losses will be more than covered by the excess of loan charges over cost for the whole loan portfolio, allowing an adequate margin for profit. Then there is the *interest rate risk*. Earnings can be dramatically reduced if a bank with a large volume of fixed interest rate assets encounters a sharp rise in short-term borrowing costs. This risk is typically

called “mismatching the book”; managing the book involves weighing the running gain from borrowing short and lending long, against the risk short-term interest rates will rise so rapidly that the spread will disappear or turn negative. Finally, banks must manage their *liquidity risk*. They must be able to meet unexpected demands for cash, money transfers or loans without hesitation or delay. Some banks provide adequate liquidity by holding secondary reserves, like Treasury bills, that can be sold when needed. Others depend on borrowing through the CD or Federal funds markets to meet cash drains. Most banks depend in some degree on the Federal Reserve discount window to rebuild their reserve accounts when bank or customer activities lead to a sudden loss of reserves.

Managing Risk

Banks typically organize internal committees to oversee the management of the various risks.¹ A credit committee of the lending function generally specifies the loan policies, supervises the evaluation of credit risks, and reviews and approves all major credit lines. With international lending so important to large banks, the evaluation of country risk is an important concern. Often the senior loan officer will be freed from major administrative responsibilities to chair the committee and be an independent judge of new loan initiatives.

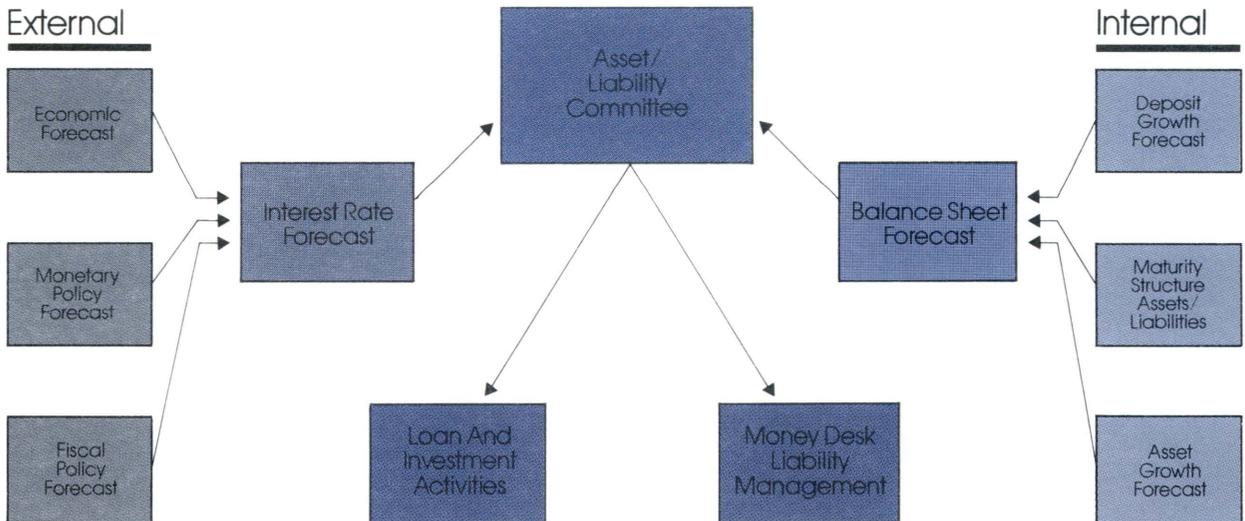
To manage interest rate risk, major banks depend on an asset-liability committee (ALCO), on which lending, investing, borrowing, and staff functions are represented (see Chart 9, page 42). This committee coordinates, or directs, changes in the maturities and types of bank assets and liabilities to sustain profitability in a changing economic environment. The committee also keeps close watch on liquidity and the bank's ability to meet demands made on it by selling assets or borrowing money. The choices made by bank asset-liability committees over the cycle, are a principal means by which Federal Reserve actions affect financial markets and the economy.

The asset-liability committee is responsible for shaping basic borrowing and lending strategy, as well as its execution and adjustment to changing circumstances. The cyclical patterns of the economy, credit demands, and monetary policy, and the opportunities and risk they present for the bank, are a major preoccu-

¹*A large money market bank, as described here, has a systematic, often formal, approach to the process, but banks of all sizes have similar risks to manage.*

pation. When the economy and loan demand become slack, money growth is likely to weaken and short-term interest rates are likely to fall as the Federal Reserve continues to provide nonborrowed reserves to the banks. At such times intermediate, or longer term fixed-interest loans, securities or mortgages offer both a large yield pickup over short-term money costs and the possibility of a capital gain, if interest rates continue to decline. The short-term rewards of mismatching the book are great, while the risks of a rise in short-term rates may be small, in the early stages of a typical economic recovery.

Chart 9 *Asset/Liability Management in a Large Commercial Bank*



As the economy picks up speed, loan demand from the bank's customers usually increases, often at a faster clip than demand and savings deposits rise. When money growth begins to exceed the Federal Reserve's objective, demands for money and credit will exert upward pressure on the Federal funds rate and other short-term rates. Then, the asset-liability committee seeks to shift the bank's portfolio toward short-term or floating rate loans, which will provide greater income as interest rates rise. Simulta-

neously, it is likely to fund the bank with somewhat longer CDs or the sale of Treasury and other securities, which are expected to drop in price when interest rates rise.

Positioning the bank to take advantage of changes in credit and demand and interest rates is critical to the sustained growth in earnings that is the objective of bank management. The volatility of interest rates since October 1979 has made banks much less confident of their ability to forecast interest rates and mismatch their book. Accordingly, they have placed greater emphasis on pricing loans on a floating rate basis with a view to locking in a profitable spread whatever happens to interest rate levels.

The asset-liability committee often works within the framework provided by the bank's annual profit planning process. Each bank's approach to profit planning reflects its organization of the businesses in which it is engaged. Major banks tend to be organized along both geographic and functional lines, with senior officers responsible for major groups of activity. Typically, one major area of responsibility is retail banking, in which internal administration of the branch network is broken down geographically. The national group is another, serving the bank's corporate and governmental clients, and banking correspondents. Domestic wholesale lending is a principal activity. The international group performs similar functions for customers abroad, handles foreign exchange operations, and supervises the borrowing and lending operations of foreign branches.

A key functional group looks after investments — the bank's mortgage and securities portfolio, its securities trading activities, and the money desk, which has the responsibility for funding the bank and making money market loans. The controller's group is responsible for taxes, accounting, budget and capital planning, and internal auditing. A separate operations group takes care of the enormous volume of back office work involved in providing bank services. Staff functions meet the bank's needs for personnel management, economic research, public relations and legal counsel.

Profit planning involves the chairman, president and the senior officers in a concerted effort to chart the course of the bank's planned growth over the next year. Annually, in September or October, each senior officer in charge of a major group makes a detailed projection of how the assets and liabilities under his or her supervision are expected to evolve during the following

1. *The Profit Plan*

calendar year, together with estimates of the expense and manpower needed to achieve the plan. The common input to planning at this stage is a forecast of the economy prepared by the economics department. Also, there is a projection of one or more key short-term interest rates, a projection often prepared with advice from the lending, investment and fund-raising areas of the bank.

The interest rate forecast is a basic input to the plan. Many banks use the 3-month CD rate (scaled up for reserve requirements and deposit insurance) as the internal cost of funds to be charged to the lending and investment operations; others include a charge for the cost of capital as well. The same rate serves as the internal rate credited to the fund-raising operation of the bank; the difference between the adjusted CD rate and the projected rate at which it expects to borrow on all liabilities represents the profit margin expected from liability management. For offshore loans, the London interbank offering rate for three-month maturities — LIBOR — performs the same basic role in internal accounting. (Borrowers are frequently given the choice of tying their loans to the one-month, three-month, or six-month Eurodollar rate.)

The loan and investment groups prepare detailed revenue estimates for their operations. They apply their own forecast earning rates, scaled up from the base rate forecast, to the average portfolio they expect for a large number of loan and investment categories. Forecasts by the economics department of the growth of demand, savings and time deposits — and the likely interest costs involved — provide the retail side of the bank with basic information needed for its own plan.

The group plans give the chairman and president a first look at how each senior officer sees his group's performance over the next year. The expense forecasts are the first step in the internal budget process. After detailed study of these tentative plans, top management draws up expense guidelines to govern the next stage of the process. When the group plans for acquiring assets are combined, the liability manager may discover that he must borrow more than he had originally planned. After a second pass by the senior officers, the chairman and president review each group's proposed plan for the year with the responsible officer, making detailed suggestions for change. The planned growth of the bank also may raise questions of capital adequacy, necessitating study of the relative merits of selling different types of

equity or debt and the most appropriate timing for such a move.

After a third pass at the planning material, the bank adopts a formal profit plan for the year. Thereafter, the chairman and president track the performance of each group in relation to its own plan. Deviations are expected. If taxable income begins to exceed plan, for example, new decisions will be needed on how much income to shelter from taxation and the way it will be done. A bank might increase its holdings of tax-exempt municipal notes or bonds beyond the levels provided for in the plan. Other deviations may arise because economic activity and Federal Reserve policy evolve differently than expected. The plan provides a common framework for making decisions, not a precise chart of the year's course.

The asset-liability committee (ALCO) is the focal point for the continuing adjustment of the maturity and terms of the bank's loans, investments and borrowings (see Chart 10, page 46). While the chairman and president are usually members of the committee, it is often chaired by the senior officer who oversees the investment portfolio and fund raising activities, the area of greatest flexibility for changing the asset-liability mix of the bank. In other banks, the treasurer or chief financial officer of the bank may chair the committee. Other members include those in charge of domestic and international lending, and, in some banks, the chief trust officer. Another member is often the senior loan officer, who chairs the credit committee, which establishes loan terms and policies. The bank's chief economist and two or three officers closely involved in the money market operations of the bank round out the group.

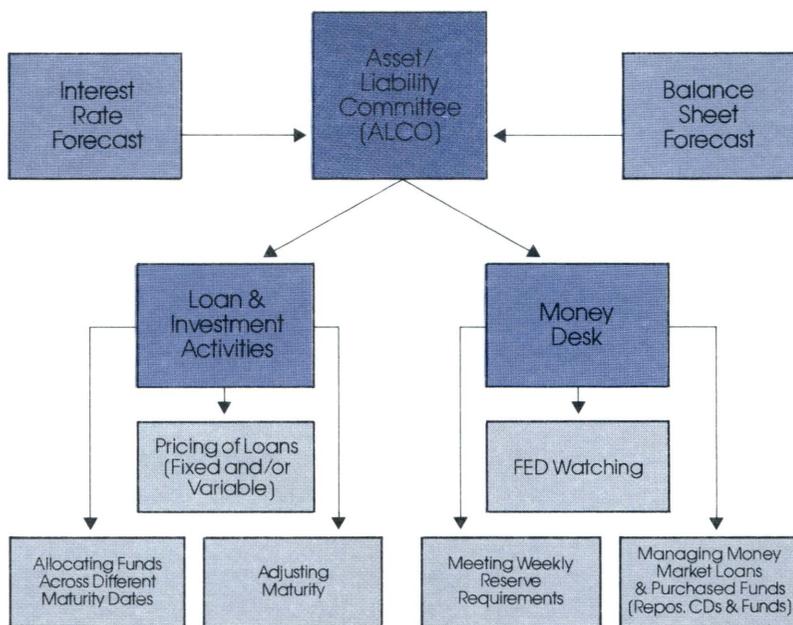
2. ALCO—Organization and Function

In some banks ALCO meets weekly, in others once or twice a month. In some it plays essentially a monitoring and coordinating role, a forum in which senior officers review the bank's global balance sheet, the economic and interest rate outlook, the state of loan demand, and avenues for adjustment. Decision making in such banks remains the responsibility of individual group managers who are responsible to the chairman and president for their function's performance. In others, ALCO meetings have detailed agenda, take up specific proposals for action, and hand down binding guidelines for asset and liability operations. Such a committee may even have its own secretary and a small staff.

In its regular meetings ALCO examines the possibilities for maintaining, or improving, the positive rate spread between

interest accruals and interest costs. In some banks the group also reviews the bank's foreign currency exposure, and sets limits on how far branches can be out of balance for the major currencies. The committee usually focuses on a simplified global balance sheet with perhaps 15 to 20 asset categories and a similar number of liability groups. At some institutions, detail may be available, if needed, on as many as 100 categories of each.

Chart 10 ALCO Decision Making



In a volatile interest rate environment ALCO seeks to lock in an interest rate spread and take measured risks in mismatching the book. It accordingly groups both assets and liabilities with a view to their sensitivity to interest rate changes. Loans might be grouped into money market loans — including broker-dealer loans, holdings of bankers' acceptances, and Eurodollar deposits — and nonmoney market loans. The latter might be broken down further between term loans, international loans and other loans. Especially important is the pricing structure of these loans. A two-year term loan may be illiquid but will not represent much

interest rate risk if it is repriced at intervals of three or six months. Investments are broken down by type (Treasury, Federal agency, municipal) and by maturity. On the liability side, major groupings might be purchased funds, demand deposits, savings deposits and foreign branch deposits. Purchased funds (including CDs) might include further subdivisions of Federal funds, term funds with maturities of less than 14 days, and term funds with longer maturities. The variability of costs with interest rate changes is a primary concern.

A typical ALCO meeting involves a review of the bank's global position, highlighting recent changes in the balance sheet. The economist presents the latest projections of domestic economic activity, supplemented at times by a similar review of other industrial economies. He also gives the group his current view on interest rates, noting the extent to which rates are expected to deviate from the profile incorporated in the annual profit plan. This touches off a round robin discussion of interest rates; some banks have participants give the probability they attach to forecasts of key rates 3 to 12 months hence. Against this background ALCO takes up the outlook for loan demand, starting with the projections prepared by the economics department. The lending functions report major transactions in the pipeline and comment on whether the projection is likely to prove too low or too high. Often the key question is whether the bank's prime lending rate for domestic business loans should be changed.

The discussion moves briskly from point to point and around the room. Decisions on loan pricing affect not only the current year's earnings, but also the longer term competitive position of the bank. If the bank raises its posted rates, will it lose loan customers to other banks? What is the trade-off between maintaining a wide rate spread over costs and the potential loss of customers to the commercial paper market or foreign banks? To cope with volatile interest rates, major banks have gradually relied more heavily on market-based pricing, attempting to build in a profitable spread between loan rates and bank costs. Customers have been given a range of borrowing options from which to choose. An overnight rate is often quoted to large borrowers, who draw on their bank lines for a few days to even out, or supplement, their use of commercial paper. The rate quoted is usually a markup over the Federal funds rate of about 25 basis points plus an additional spread related to credit risk. Banks also

3. Shaping a profitable strategy

often quote fixed rates for loans lasting as long as 60 to 90 days, basing the rate on the cost of CDs of corresponding maturity, including the cost of reserve requirements and FDIC insurance. Again, the base rate quoted the most creditworthy customers would allow a profitable spread for the bank, and the spread would increase with perceived credit risk. Finally, on term loans, banks tend to give their customers several flexible rate options. One option is prime rate pricing, in which the loan's cost rises or falls with movements in the bank's prime rate. Other options involve repricing at intervals of 30, 60, 90 or 180 days at a markup over either the London inter-bank offering rate (LIBOR) or the all-inclusive cost of domestic CDs of comparable maturity.

From ALCO's vantage point, market based pricing can help a bank insulate its earnings from variations in interest rates. To do so, the bank matches its loans with liabilities whose maturities correspond to the dates for repricing the loan. ALCO can then concentrate on whether the bank should mismatch its book in view of the rate outlook. If it expects interest rates to be volatile, ALCO tries to keep the bank's book in reasonable balance. A rising rate outlook, if held with conviction, may lead to a lengthening of liabilities; a falling rate outlook, to shorter funding. The objective of the exercise is to reduce the volatility of bank earnings, while continuing to make interest rate judgments at the margin that enhance earnings.

A schedule of maturing assets and liabilities spotlights decisions for ALCO that cannot be delayed. Maturing Treasury securities provide one example. Is the bank to roll over its holding, add to it, or let a major part mature? The coming maturities of mortgage and other loans also offer an opportunity to change the allocation of assets, or to improve bank liquidity, by reducing the volume of purchased funds. The schedule of maturing term Federal funds, time deposits, CDs, Eurodollars, and commercial paper sold by the parent holding companies poses another set of decisions. Does the outlook for interest rates and loan demand suggest letting the volume of purchased funds decline? Or is now the time to bid for 6-month CDs and Eurodollars in size, pre-financing the next six weeks of maturities in a single week?

ALCO's job is to produce an integrated strategy, which operates on both sides of the balance sheet. To assist its deliberations, the liability manager may prepare alternative plans for action, showing the effect each would have on the interest rate spread and bank earnings under different interest rate profiles.

Many banks focus on the gap between interest-sensitive assets and interest-sensitive liabilities in assessing their rate exposure. For example, if there were a negative gap equal to 10 percent of assets and the bank's net interest margin were 4 percent, then a rise of 2 percentage points in the bank's interest costs would reduce earnings by 5 percent.² Some banks have gone well beyond such a simplified gap analysis, constructing a model of the bank's asset and liability structure line by line. ALCO can then compute quickly the effects on earnings of projected changes in interest rates, or of selling 6-month CDs compared to purchasing Federal funds.

On the asset side, if ALCO concludes that interest rates are topping out or heading lower, the bank can take the initiative — holding bankers' acceptances in portfolio, taking on fixed-rate term loans, relaxing mortgage terms, acquiring securities in the market, and making fixed-term Eurodollar placements. The bank also can enter futures contracts to acquire CDs, Treasury bills, bonds and mortgage-backed securities of the Government National Mortgage Association (GNMA) — anticipating savings or other money inflows. On the liability side, the bank can rely more on Federal funds, short-term CDs, and Eurodollars to roll over maturities and finance the asset buildup. By allowing the average maturity of its liabilities to fall, it can increase the expected favorable effect from falling interest rates. The bank can reduce advertising of longer term savings certificates or even cease offering them if competitive conditions permit. If ALCO, instead, expects interest rates to rise, alternative plans are likely to feature combinations of actions that extend maturities of bank liabilities, reduce fixed-rate assets, and expand the share of floating rate assets in the portfolio.

The theory is reasonably straightforward, but forecasting business loan growth and interest rates is a chancy business. Major banks often have been disappointed by loan demand, because larger companies use commercial paper or because the economy is not as strong as expected. At other times, loan demand is intense — for example when corporations seek to defer long-term borrowing in the bond market.

Interest rates, too, can behave unexpectedly for extended periods. The Federal funds rate and other short-term rates may rise sharply, when the Federal Reserve seeks to moderate overly

²See Sanford Rose, "Gleanings from a Major Study", *American Banker*, January 5, 1982.

rapid money supply growth, only to fall later when money growth slows down. In any case, competitors are likely to form similar expectations so that one must be agile to achieve a superior performance. When interest rates are generally expected to rise, that will be reflected in market yields; six-month CDs already will cost more than three-month CDs and one-year CDs still more. Seven-year Treasury notes acquired last year for the portfolio will already be selling below cost. When ALCO decides to modify the bank's asset-liability mix, it may be because it believes interest rates are going to rise higher or faster than the market as a whole expects. But it could equally well be experiencing a surge in loan demand peculiar to the bank or the need to bid on five-year CD money from a petroleum exporting nation.

Increasing interest rate volatility has made ALCOs much more cautious in recent years about assuming the interest rate risks involved in banking. As noted earlier, banks have gravitated toward market-based pricing formulas to reduce their exposure to such risks. This shifts a major part of the risk to the borrower. Banks must keep close check on the ability of their borrowers to shoulder the interest rate risk; otherwise, they may find the credit risk of loans is higher than they assumed. While borrowers can hedge such risks, if they choose, in the financial futures market, such hedging has largely been confined to commodities-oriented businesses that have experience in futures markets. Banks may well begin to hedge such risks more effectively themselves in the futures markets as a means of offering business borrowers greater stability in the rates the banks charge.

In reaching decisions, ALCO members know that large banks, like battleships, cannot turn on a dime. Changes in loan terms, in particular, have to filter through the corps of loan officers with whatever modifications are necessary in the interest of long-standing customer relationships. There are limits as well to the speed with which large amounts of six-month or longer CDs and Eurodollars can be sold. A big push can flood the market with paper, inflict losses on the first dealers or customers to buy it, and raise customer concerns if there are any problems associated with the name of the bank. Bankers keep a close watch on their share of the market in everything from Federal funds to CDs and Eurodollars so that they will have a good idea of what size operations the market and customers will tolerate readily. Being aggressive at times can even strengthen a bank's reputation for astuteness. But overdoing CD sales repeatedly may necessitate

paying a premium rate, and once lost, a top quality standing is hard to win back. ALCO's members will seek to avoid a course that could cause the bank's good name to be questioned.

The task confronting ALCO is not unlike that facing the Federal Open Market Committee. It must shape present strategy in the light of its reading of the economic outlook with all the uncertainties and conflicting opinions involved. Its strategy must capitalize on the bank's organizational strengths, but be flexible enough to change promptly when its forecasts of loan demand and deposit growth go awry. ALCO monitors the situation closely. Mid-course corrections, once decided, depend importantly on the skill of the bank's operators in financial markets. They must not only carry out the strategic and tactical moves that affect the markets, but also keep the policymakers informed of market developments. The money desk may encounter market limits on the volume of CDs it can sell, and thereby constrain the policymaker's freedom of action. Not surprisingly, ALCO's moves, like the FOMC's, usually involve a series of moderate adjustments to a well-plotted strategy rather than dramatic changes of direction.

***Implementing Bank Strategy
— the Money Desk***

In carrying out strategy, the money desk of the commercial bank plays a vital role, one akin to the role of the trading desk at the New York Reserve Bank in carrying out open market operations. Its workaday concerns have defensive and dynamic qualities of their own. Defensively, the money desk must manage the bank's reserve position, seeing that reserve requirements are covered for the statement week ending Wednesday — but with as little uninvested excess as possible. Dynamically, the money desk and its international counterpart must take on, and/or lay off, funds in accordance with ALCO's changing strategy.

In its routine operations, the money desk projects the regular ebb and flow of customer deposits and transactions affecting the bank's reserve position. While such estimates provide a point of departure, the money desk relies in the final analysis on an internal information network to spot big gains or losses to its reserve account at its Federal Reserve Bank. These may result from net deposit flows, customer transfers of funds by wire, loan extensions, or changes in the net financing needs of the investment and trading areas of the bank.

The money desk can vary the terms it sets on collateralized loans, or repurchase agreements, with dealers in government, municipal and corporate securities. Changing the posted dealer

loan rate is a time-honored means of adjusting position. The money desk typically uses the bank's portfolio of Government securities to offer corporate and other customers overnight or term repurchase contracts (RPs). Moreover, it also sells CDs for the bank and commercial paper for the holding company. The money desk directs the strategy for acquiring Eurodollar funds for the head office through major foreign branches. It essentially carries out the funding operations that are booked at branches in the Nassau and the Cayman Islands for tax or other reasons. The money desk also handles the funding of the bank's international banking facilities in domestic centers, through which offshore business can be serviced without the reserve requirement and tax costs of domestic institutions.

The officer supervising the money desk directs daily tactics within a weekly strategy, which in some banks is worked out with the aid of a separate money position committee. Under lagged reserve accounting, reserve requirements for each statement week are calculated by applying the appropriate percentage to the different categories of bank deposits on the books two statement weeks earlier.³ Vault cash held two weeks earlier counts toward meeting the requirements and there may be a modest carryover deficiency or surplus from the preceding statement week to take into account. What remains is the specific average balance to be maintained in the bank's Federal Reserve account for the week beginning on Thursday.

The officer in charge — or the money position committee — will pin down the approach to be used in rolling over CDs, commercial paper, and RPs, and in making dealer loans in the weeks ahead. Adjusting the basic projections for these plans indicates the amount of Federal funds that the desk will then need to borrow on average in the interbank market during the week. The bank's money market economist will also give his forecast of the expected need for the Federal Reserve trading desk to add or withdraw reserves from the banking system during the statement week. If the Fed is expected to add a lot of reserves through RPs, for example, that will often reduce dealer financing requirements and ease the reserve positions of the major money market banks. The group will discuss the likely course of the Federal funds rate over the week. Finally, the officer-in-charge will decide whether

³Under a proposed change to contemporaneous reserve accounting, the reserve maintenance period for checkable deposits will lag the reserve calculation period by two days.

the Federal funds trader is to err on the long, or the short, side in daily operations early in the week. In this decision the officer will bear in mind that a shortfall from expectations may well have to be covered at the Federal Reserve discount window.

The Federal funds trader of a major bank usually starts each day with an estimate of the bank's closing position at its Federal Reserve Bank the night before. The trader may not be confident of that position until noon, but the Federal funds market is in full swing by 9:30 a.m. In the meantime, he or she may cover a portion of the week's deficit under the approach already developed. At hand are estimates of the major transactions that will go for, or against, the bank that day from RPs, CDs, or Eurodollars, as well as from customer and other transactions. The net inflow from direct transactions in Federal funds with correspondent banks is reasonably predictable; hence he knows the remaining net amount that must be bought, or sold, in the broker's market. The trader tries to gauge from broker comments and the bank's own direct trades with out-of-town banks whether the Federal funds rate is firm and likely to rise, or whether waiting a bit will allow needs to be covered $1/4$ or $1/2$ of a percentage point cheaper. He may even sell to put downward pressure on the rate if he thinks he can buy back at a lower rate later in the day. As the day goes on, the trader's own picture becomes clearer and he or she tries to buy enough funds to come out about on target.

On Wednesday, of course, the trader has to bring the Fed balance to a level needed to meet the average level required for the week, after allowance for any excesses or deficiencies carried in from the previous week. It is an especially tricky day. Reserves in the system are likely to be either overly abundant with a resultant tendency for the Federal funds rate to fall. Or they are apt to be short, producing upward rate pressure. The trader's success in contributing to bank profits depends importantly on whether he or she can wind up more often than not in a position to balance out with cheap money on easy Wednesdays, and avoid having to pay up on tight Wednesdays. The Federal Reserve serves as the lender of last resort on those occasions when the bank finds itself suddenly short because of unexpected transactions, or the trader cannot find funds in sufficient volume late in the day before the Fed's wires close. Or the bank's officers may have concluded that they can risk borrowing at the discount window because of their limited recourse to it in the recent past.

The *dynamic* role of the money desk is twofold. It feeds infor-

mation to ALCO on Federal Reserve behavior and market attitudes, and it also executes ALCO's decisions to change the bank's asset-liability mix. Fed-watching calls for projecting the central bank's need to absorb or supply reserves if borrowings at the discount window — and the Federal funds rate — are to remain about at the levels of recent weeks.

As treated more fully in Chapter 7, a money market economist produces a running commentary on the Fed trading desk's actions. Projections of the weekly money supply data and the cumulative trend of money growth help him decide whether the desk is supplying nonborrowed reserves more, or less, aggressively in relations to the demand of banks for reserves to cover their requirements. The economist also estimates how much the pressure on the banking system will change in the weeks ahead because of supply-determined changes in discount or surcharge rates. ALCO members themselves keep abreast of what Federal funds brokers, government securities dealers, and other Wall Street analysts are thinking. Members will also have their own reading of the current monetary and economic reports coming in and the balance of views within the FOMC. But the view from the firing line is important, both for its relevance to asset-liability decisions, and for the real limitations the market may place on the adjustments that can be carried out.

The money desk's execution of ALCO's decisions — the *dynamic* part of its job — sometimes requires pressing toward vague market limits of what a single bank can accomplish on its own behalf in adding to, or extending, CD maturities. Each bank tends to develop its own approach to liability management. Some banks make every effort to confine CD and commercial paper sales to customers served by their own sales force. They try to build customer loyalty by splitting, in effect, the bid-ask spread quoted by dealers in the secondary market. While this approach aims at keeping down the floating market supply of the bank's paper, nimble corporate treasurers can often take down paper when rates are moving quickly for immediate resale at a profit to dealers. Other banks prefer direct sales to customers, but also mobilize on occasion the extensive sales forces of several dealers to place a lot of paper quickly. Then they will post higher rates and sell to all comers — dealers and customers alike. Still other banks — especially regional ones — regularly sell paper to dealers as a means of utilizing the dealers' sales forces for distributing their paper. Within a bank's approach,

the money desk must maintain good relations with customers and dealers by trying to be fair.

A sense of market timing, and the courage of one's convictions, are prerequisites for good performance in the highly competitive world of liability management. Frequently, a bank will find that another bank has beat it to the punch with an aggressive CD program, thus forcing it to decide whether to push ahead and put further upward pressure on rates. Alternatively, it may hold off for a time, risking a decline in availability, or rise in rates, in hopes that the market will settle back. Good managers learn to reverse direction quickly when they make mistakes, but also to push ahead aggressively when they catch the tide running their way.

For the money desk — and the bank — the defensive and dynamic aspects of operations fuse into a seamless pattern of action. ALCO members, by virtue of their own management responsibilities, track the strategic changes flowing from within their subordinate groups. There is a daily flow of selected information and analysis from the money desk and the investment areas to senior management. A few phone calls can win a change of emphasis without a formal ALCO meeting. The money desk, too, finds most dynamic changes mean doing a bit more, or a bit less, in relation to maturing liabilities rather than a crash program to restructure liabilities *en masse*. Other market participants often will not be able to be sure of a bank's marginal changes of emphasis since they will not know the maturities that have to be funded. Over time the bank's views on the interest rate outlook will be known and shape the market's judgment of management's astuteness. The money desk, in particular, represents the bank to the financial markets, and its professionalism and reputation will have much to do with a bank's standing in the financial community.

4

The Money Market¹

The money market is not one market but many interlocking markets, in which borrowers raise funds to finance their operations. Conventionally, the *money market* is defined to include debt maturities of up to one year while the capital market includes longer maturities and equity shares. In both markets specialists facilitate the original issuance of securities and stand ready to buy and sell issues already outstanding (see Table 1, page 57).

The money market helps the participants in the economic process cope with the financial uncertainties they face in daily life. First, it helps bridge differences in the timing of payments and receipts in a market economy. Borrowers rely on it for seasonal or short-term cash requirements; lenders use it to even out differences between the flow of loan repayments and the take-down of new loans. Secondly, the money market permits borrowers and lenders to time their use of the capital markets in accordance with their forecasts of long-term interest rates. Borrowers can use the money market to postpone issuing long-term debt, while lenders can place funds there temporarily when they expect investments in stocks or bonds to be more attractive later. The money markets here and abroad also help international corporations and others to manage the risks of conducting business and maintaining investments in many currencies.

For the Federal Reserve the money market serves still another function, its point of entry for open market operations in Treasury and Federal Agency securities. Defensively, these operations help the market to turn short-term assets into cash — to provide liquidity to participants with highly variable needs for money. Dynamically, open market operations seek to affect money and credit growth through the money market in ways that will modify the business cycle.

A key service of the money market is to convert short-term assets to cash at an acceptable cost. Dealers have developed over the years to provide that kind of liquidity to debt instruments, once they have been issued. In the early stages of financial development, banks provide various deposit options, and the economic players have to manage their assets to meet their own

¹I am particularly indebted in this chapter to Marcia Stigum's fine book, *The Money Market: Myth, Reality and Practice* (Dow Jones-Irwin, Homewood, Illinois, 1978), for its wealth of descriptive material on the operational practices of the different markets.

Table 1: The Money Market

Instruments	Typical Maturities	Principal Borrowers	Secondary Market
Federal Funds	<i>Chiefly 1 business day</i>	<i>Banks</i>	<i>None</i>
Negotiable Certificates of Deposit (CDs)	<i>1, 2, 3 and 6 months</i>	<i>Banks</i>	<i>Active</i>
Bankers Acceptances	<i>90 Days</i>	<i>Financial & bus. enterprises</i>	<i>Active</i>
Eurodollars:		<i>Banks</i>	
Time Deposits (non-negotiable)	<i>Overnight, 1 week & 1 to 6 months</i>	<i>Banks</i>	<i>None</i>
CDs (negotiable)	<i>1 to 6 Months</i>	<i>Banks</i>	<i>Moderately active</i>
Treasury Bills	<i>3 to 12 Months</i>	<i>U.S. Government</i>	<i>Very active</i>
Repurchase Agreements	<i>1 Day, 1 week, 3-6 months</i>	<i>Banks, securities dealers other owners of gov'ts.</i>	<i>Very active primary market for short maturities</i>
Futures Contracts (Treasury Bills, CD's, And Eurodollars)	<i>3-18 Months</i>	<i>Dealers, Banks (Users)</i>	<i>Active arbitrage with cash market</i>
Federal Agencies		<i>Federally sponsored agencies: Farm Credit System Federal Home Loan Banks Federal National Mortgage Assn.</i>	
Discount Notes	<i>30-360 Days</i>		<i>Limited</i>
Coupon Securities	<i>6-9 Months</i>		<i>Active</i>
Commercial Paper	<i>30-270 Days</i>	<i>Financial & bus. enterprises</i>	<i>Limited</i>
Municipal Notes	<i>30 Days to 1 year</i>	<i>State & local gov'ts.</i>	<i>Moderately active for large issuers</i>

probable needs or rely on bank credit. Today, active bank competition for funds in the market for bank reserves, CDs, Eurodollars, and bankers' acceptances is a natural extension of the provision of deposit services to garner balances. A holder of negotiable CDs or other debt instruments no longer needs to wait until his asset matures to get cash; he can sell the asset for cash to a dealer,

who buys and sells at a narrow spread. The greater the routine activity in a sector of the money market, the smaller the transactions cost the investor incurs.

High grade borrowers use the market to borrow funds directly from investors, emancipating themselves in the process from being overly dependent on financial institutions. Business and financial corporations, and Federally sponsored credit agencies borrow in the commercial paper market. The U.S. Government issues Treasury bills while the sponsored Federal agencies sell other short-term paper. The dealer market in Treasury issues encompasses the most active sector of the money market, and its operations are described at length in the second half of the chapter.

The money market is international in character. Banks of many nations bid for dollar deposits and lend dollars throughout the world. Foreign borrowers also raise funds in the bankers' acceptance and commercial paper markets. Foreign central banks and others hold U.S. dollar assets in large volume as a cushion against the vagaries of international economic life.

The Functions of the Money Market

The money market plays a key role in the operation of the U.S. economy. The forces of supply and demand determine both the rates of return on money and its close substitutes, and the costs of short-term borrowing. Looking through the veil of intermediation, the ultimate borrowers include consumers buying on credit and businesses financing inventories or new plants. Governmental units, as well as foreign corporations and governments, also cover their short- or long-term needs in the financial markets. The ultimate sources of funds are the savings of the various sectors from current income, augmented by the monetary and credit expansion the monetary system makes possible.

The money market and its institutions provide the public with money or money substitutes in the process of moving funds from savers to spenders in the economy. Commercial banks and thrift institutions offer a great variety of retail deposit services to attract the working balances and savings of the society. They act as intermediaries in the savings-investment process, accepting demand and savings deposits on reasonably stable, advertised terms and investing them in a variety of assets. Their ability to collect funds at retail depends on their ability to place funds in the loan markets they serve.

As noted in the previous chapter, commercial banks are particularly active in the wholesale money market, funding their lending operations through CDs, Euro-dollars, bankers' acceptances and commercial paper. Money market mutual funds interpose another layer of intermediation, offering check redemption privileges to their shareholders and charging management fees for investing in money market instruments. In the wholesale market, banks and Government securities dealers offer investors repurchase agreements (repos) at a competitive rate of return by selling securities under contracts providing for their repurchase from one day to several months later.

As money markets develop, high quality borrowers become able to borrow directly from investors who want to hold an asset with a high degree of moneyness, or liquidity. On average, over the course of the interest-rate cycle, investors are willing to accept a lower rate of return on short-term assets than on longer term obligations, which carry a greater risk of loss if sold before maturity. A borrower who has a top quality credit rating can capitalize on this preference for liquidity by selling his short-term obligations to investors at a lower rate than he would have to pay a bank. The rate paid will reflect the creditworthiness of the borrower, the taxability of the interest received, and supply-demand forces at work in the market. The pre-eminent direct borrower is the United States Treasury, which auctions 3- and 6-month Treasury bills weekly and 1-year bills every four weeks. The Federally sponsored credit agencies issue commercial paper and other securities to finance their own lending to farmers, savings and loan associations, and the housing industry. Finally, an impressive array of private business and financial firms have achieved credit ratings sufficiently high to make their commercial paper salable to investors either directly or through commercial paper dealers.

The money market's short-term credit facilities permit farmers, merchants and industrialists to finance the production and distribution of their products. Government units can bridge timing differences between disbursements and tax receipts, while consumers can use automatic credit facilities to cover spending in anticipation of income. Borrowers are also constantly faced with deciding whether to borrow short term or long term at existing interest rates; even when borrowing is for capital investment, they can usually finance short term if they expect interest rates to fall. Finally, international corporations and many

governments have to decide as well in which currencies to borrow and to maintain liquid assets.

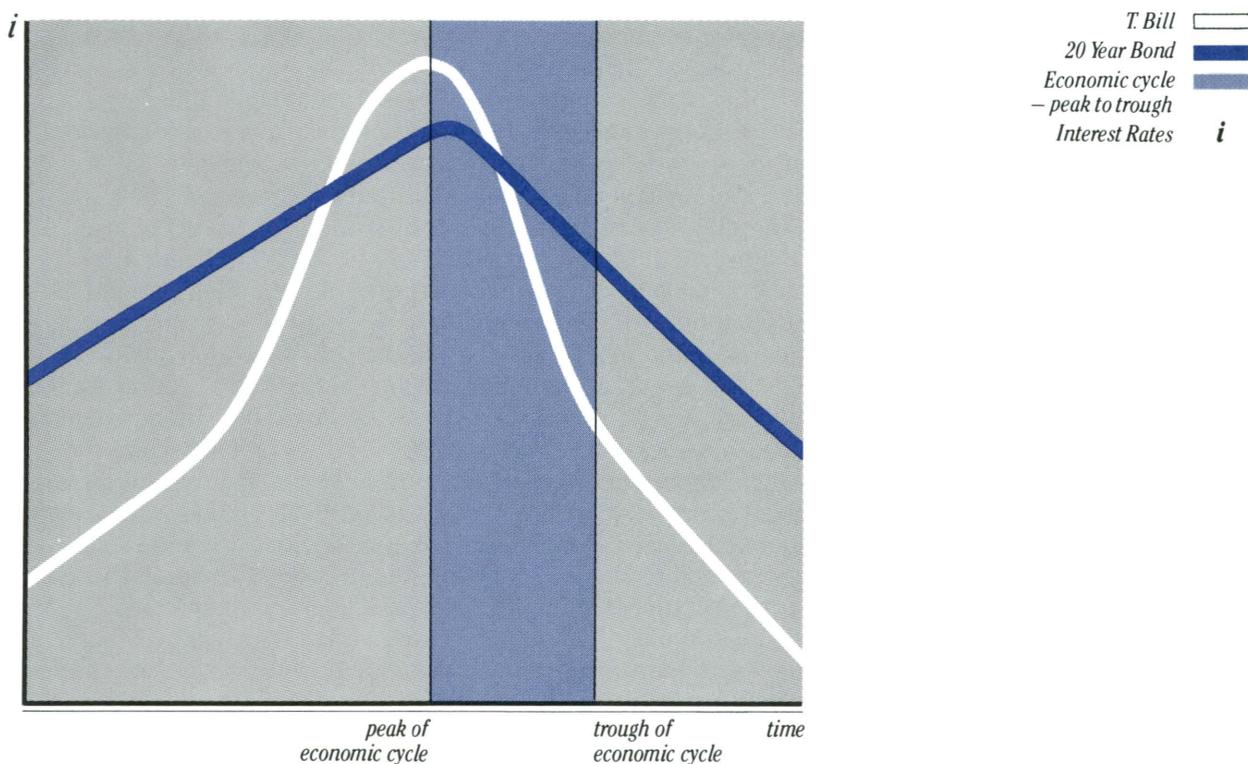
Lenders confront the same issues. How much should be committed to the routine financing of consumer credit, business working capital needs, or short-term government finance? What margin of resources should be placed in the money market to await better future opportunities in the stock and bond markets? How much should asset portfolios be diversified by currency? The money market exists, of course, to bring the demands for short-term credit into balance with the funds available — at interest rates that reflect credit risks and consensus expectations of future interest rates and exchange rates.

The Federal Reserve exerts leverage on the financial system and economic decision-making by changing the cost and availability of the reserves available to the banking system. Open market operations provide the flow of nonborrowed reserves deemed consistent with the central bank's annual monetary objectives, while changes in the discount rate and reserve requirements affect the cost of reserves to the banks. Monetary stimulation in a recession involves maintaining the flow of reserves to the financial system; as credit demands subside, the Federal funds rate and other short-term rates fall below long-term interest rates, encouraging a pickup in monetary and credit growth that will stimulate economic activity. The economic expansion itself spurs demands for short-term credit and money, which interact with the nonborrowed reserves being supplied by the Federal Reserve. Money market rates rise relative to rates on longer maturities (see Chart 11, page 61). As the cost of short-term debt rises, economic participants economize on their holdings of money, and businessmen manage more efficiently their inventories of goods in process.

Interest rates alone are nonetheless a poor guide to whether monetary policy is exerting stimulus or restraint because they reflect the economy, as well as influence it. In a period of recession, for example, when businessmen shift from building inventories to reducing them, the decline in short-term interest rates may well reflect the slowdown itself, rather than monetary policy actions. If money and bank credit growth are sluggish, more vigorous Federal Reserve efforts to pump in reserves and push interest rates lower may be called for, provided inflationary expectations are under control. Similarly, periods of economic boom bring their own rising credit demands and upward pres-

sure on interest rates. Monetary policy may not be sufficiently restrictive if money and credit growth begin to accelerate. To be effective, monetary restraint has to permit interest rates to rise above existing expectations for inflation — in other words, achieve positive real interest rates.

Chart 11 Interest Rates over the Business Cycle



The Federal Reserve System and major commercial banks around the country are the pumping stations that keep money circulating in the U.S. economy, channeling it through the money market to the points of greatest demand. The Federal Reserve provides reserves flexibly to the banks. They and the money

Banks and the Money Market

market provide money on demand in exchange for interest earning assets or IOU's. Having specified reserve requirements for depository institutions, the System manages nonborrowed reserves to allow for seasonal fluctuations in money demand as well as the growth desired by the FOMC. The discount window serves both to buffer unforeseen stresses and to exert pressure on interest rates when money demands are too strong or too weak. The Federal Reserve's telegraphic network, over which funds and Government securities move between banks, makes the domestic money market a truly national one. The Reserve Banks also maintain a national book-entry system for Treasury securities. In some periods the Treasury and Federal Reserve also have used operations in the market for dollars and foreign currencies to provide a degree of continuity to the rates at which one currency can be exchanged for another.

The major banks participate in the money market themselves and furnish the back office and credit facilities needed by the nonbank players. The money market banks and their parent holding companies include eight or nine in New York and perhaps twice as many in Chicago, San Francisco, and other major centers. They are the mainstays of the markets for Federal funds, bankers' acceptances, CDs and Eurodollars. They are active also in the markets for repurchase agreements (repos), bank commercial paper, and tax-exempt notes. Money market banks are typically the principal domestic traders in the worldwide foreign exchange market. Beyond this they provide deposit and safekeeping facilities to major corporations and others, helping them to manage their cash and other assets efficiently. Many banks act as dealers in money market securities, while others actively service customer investment needs through a short-term investment desk. A few banks in New York City serve dealers in money market instruments as clearing agents — receiving and delivering securities for them against payment. Several city banks serve as residual lenders to nonbank dealers in money market securities, but out-of-town banks and nonbank customers account for the major share of such lending.

Regional banks and affiliates of foreign banks are active, too, in trading Federal funds and issuing CDs and bankers' acceptances. The regional banks serve many local businesses and banks in their own area, providing their customers with immediate access to the international money market. The foreign banks provide the same recourse to the U.S. money market for head offices and

global branch networks as well as for overseas clients and their growing U.S. operations. While regional banks operate in the foreign exchange markets, it is a major activity for the foreign banks. Other U.S. banks are primarily customers of the money market rather than movers and shakers.

Bank-centered components of the money market include the Federal funds market, the CD and Eurodollar markets, and the bankers' acceptance market. The markets in Treasury securities and other short-term debt instruments are treated later in the chapter.

Borrowing banks purchase (or borrow) funds in this interbank market to meet their reserve requirements in the short run or finance loans and investments in the longer run. Such borrowings are subject neither to reserve requirements nor the legal prohibition against paying of interest on demand deposits.² Lending banks typically view Federal funds sales as a part of their liquidity, varying their sales with the ebb and flow of reserves through their Federal Reserve accounts. Most banks tend to be either net borrowers (buyers) or net lenders (sellers) of funds more or less permanently, although some shift back and forth. The net borrowers are typically *asset-driven* banks, which scour the world for profitable loans and investments and then seek to finance them as cheaply as possible.³ The net lenders are more likely to be *liability-driven* banks, operating in the textbook fashion of responding to the flow of funds attracted from customers. The net sellers also typically include nonmember and resident foreign banks, thrift institutions, credit unions, Federally sponsored credit banks, and international banking institutions — institutions defined as banks for this purpose by the Board of Governors. The latter institutions often keep a part of their liquidity in the Federal funds market. The call report of the Federal Deposit Insurance Corporation (FDIC) indicated Federal funds sold and securities purchased under overnight repos were \$146 billion at the end of 1981.

1. *The Federal Funds Market*

²In October 1979 purchases of Federal funds from nonmembers and other banks were included in the managed liabilities of member banks, and made subject to a marginal reserve requirement. The distinction was later dropped.

³See Paul Meek and Jack W. Cox, "The Banking System — Its Behavior in the Short Run", *Essays in Domestic and International Finance (Federal Reserve Bank of New York, 1969)*, pp. 50-57.

As noted in Chapter 3, the funds market is a bank's first line of defense in meeting its reserve requirements in the statement week, which ends on Wednesday; its protective backstop is the discount window of its Reserve Bank. Each bank must maintain reserves for the week equal to a specified proportion of its demand and time deposit liabilities during the statement week that ended two weeks earlier.⁴ The cash held in its vaults two weeks earlier counts toward the requirement, leaving the rest to be made up by average deposit balances held at the Reserve Bank. Failure to meet requirements involves a penalty rate on deficiencies incurred as well as the displeasure of the Reserve Bank. Member banks are permitted to carry over deficiencies of up to 2 percent of required reserves, provided they cover them by a corresponding surplus in the following week; surpluses can be carried over to the same limited extent.

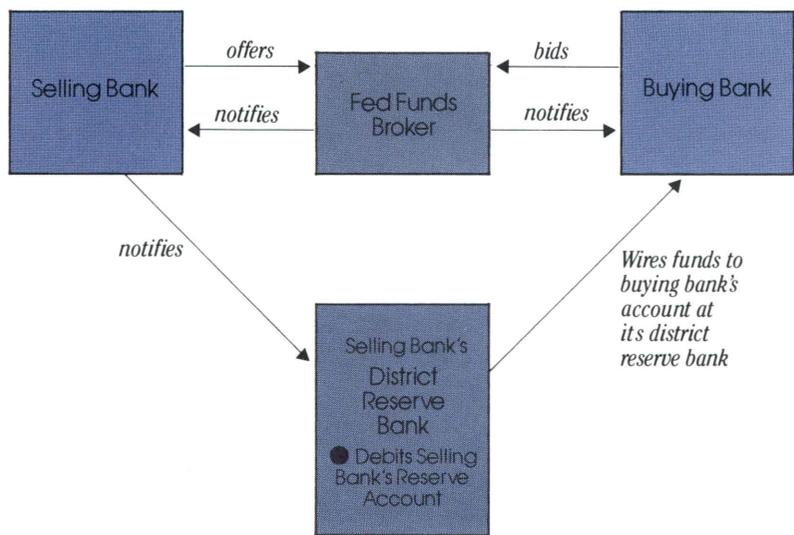
The Federal funds market operates over the telephone. The participating banks deal as principals while a half dozen brokers help match the banks needing funds with those in temporary surplus. Perhaps 100 or so major banks, asset-driven institutions in daily search of funds, are willing buyers from their correspondent banks on a regular open account basis; they also make accommodative sales of funds as needed. Typically, on purchases ranging upward from \$50,000 to many millions of dollars, the banks will pay correspondents either the bid rate or somewhat less; they tend to sell to correspondents at the offered side of the market. Since most loans are unsecured, banks maintain credit limits bank by bank on the amount they will lend. In practice, most correspondents sell on a daily basis, reducing or increasing such sales as required to balance their own position. Regional banks, too, cultivate smaller correspondent banks to garner the reasonably stable flow of funds available from such liability-driven institutions.

Brokers provide an essential service to the several hundred banks that are regular participants. The major Federal funds brokers take bids and offers from banks by phone, typically in amounts of \$5 million or more, charging each party to the trade 50 cents per \$1 million. The broker notifies each participant to a

⁴The two-week lag between the reserve calculation and reserve maintenance periods was introduced in 1968. In 1983 the reserve maintenance period is to be extended to two weeks ending on alternate Wednesdays, while the reserve calculation period for checkable deposits will end two days earlier.

trade. The selling bank then notifies its District Reserve Bank to debit its account and wire the funds to the buying bank. The transaction is typically reversed the next day and the interest is paid (see Chart 12).

Chart 12 Fed Funds Transaction (with Broker)



The transaction is reversed ● the following day.

Brokers keep participants posted on the current rate at which Federal funds are trading and how they see the market “15 per cent bid — 15 1/4 per cent offered, better bid than offered,” might be the call. A broker will try to get bidders to step up their rate or sellers to accept a lower rate, when his sheets reflect a heavy concentration on one side or the other. The brokers keep the domestic trading desk of the New York Reserve Bank informed throughout the day of the balance between supply and demand. They may also give customers their best judgment as to the Federal Reserve’s possible intervention to affect reserves. And they quickly report any evidence of Reserve Bank action. Daily volume of the brokers reporting to the Federal Reserve Bank of New York was about \$30 billion near the end of 1981.

Most activity in the market involves purchases and sales for one business day, but trading for future delivery and for an extended term also takes place. Trading for future delivery used to

be substantial when banks were arbitraging between the Euro-dollar and Federal funds markets around weekends.⁵ This activity, made profitable by the savings on reserve requirements it produced, declined substantially after the Federal Reserve asked banks in late 1980 to refrain from such activity. The move of the New York Clearing House Association to the same day settlement of transactions in late 1981 made such arbitrage activity more difficult.

The market for term Federal funds is a wholesale market, involving maturities of a few days to several months. To domestic banks, buying funds for a 30-, 60-, or 90-day term is equivalent to the sale of a CD, except that such a borrowing does not carry reserve requirement and deposit insurance costs. Banks can thus pay a higher rate to other banks than if they were selling their own CDs. Resident foreign banks often place funds raised abroad in this way when the rate spread is favorable. Some banks situated abroad, including central banks, lend Federal funds whenever the rate is higher than that available on repurchase agreements. Savings and loan associations, and the supervising Federal Home Loan Banks, also use the term funds market to invest liquid reserves. Domestic commercial banks at times sell term funds when they think they would be able to cover the sale daily in the overnight market at a profit, but this approach has often proved costly when interest rates rise.

2. The CD Market

Since its introduction in 1961, the negotiable bank certificate of deposit, or CD, has served domestic banks as a major source of funds. Banks borrow through CDs principally from nonbanks. The CD offers investors a higher market rate of interest than a U.S. Treasury bill, together with the liquidity provided by an active secondary market (see Chart 13, page 67). CDs form an important segment of the short-term portfolios of corporations, state and local governments, foreign central banks, and other financial entities, including money market mutual funds. The success of the domestic CD has been followed by the growth of an active market for Eurodollar CDs, first in London and later in New York. There is also a growing market in New York for the

⁵This provided a cash item in process of collection on Friday which is deductible from deposits. The 3-day savings this afforded on reserve requirements was only partly offset by a one-day increase in deposits on Monday when a cashier's check was used to repay the loan.

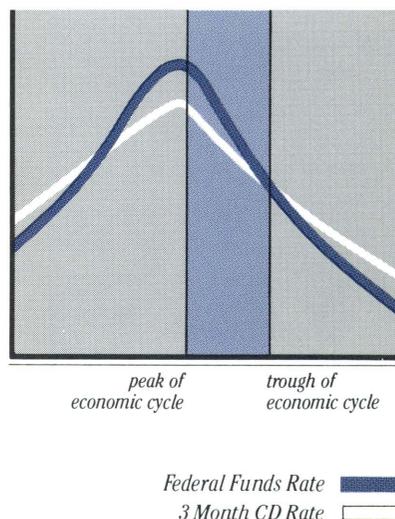
CDs of resident foreign banks, known as Yankee CDs. Moreover, large domestic savings and loan associations have also become issuers.

The CD market proper consists of the issuing banks, the dealers making markets in CDs to banks and investors, and the investors themselves. The issuing banks are divided by the market into a number of tiers. CDs of the top tier of about ten major domestic banks command the lowest rates and the most active secondary market. The second tier contains another 10 or 20 banks that may have to pay 10 to 20 basis points more than the top tier. Their CDs are actively traded, but at somewhat wider bid and offer spreads than the first tier; dealers are a bit more reluctant to position them. The third tier includes regional and resident foreign banks whose CDs trade reasonably frequently but 20 to 50 basis points higher in rate than the first tier. Yankee CDs and those of large savings and loan associations — chiefly in California and Florida — usually trade at or above the rate prevailing on regional bank CDs. Many other banks issue CDs primarily to local businesses and government units and these appear infrequently in the secondary market. The yield spreads from the top banks to other issues typically widen in unsettled markets and close when markets are steady or rates are declining.

The market is essentially a negotiated one between banks and their customers. The active banks post the rates at which they are prepared to accept deposits for the most popular maturities — 1, 2, 3 and 6 months. Major banks usually have a small sales force to keep up with customer needs and to call around quickly if the bank decides to sell a large volume by offering an attractive rate. CDs that enjoy a secondary market are typically issued and redeemed in New York City; out-of-town banks do so through their correspondents. Such CDs usually are issued in \$5 million units at par with interest paid at maturity, although \$1 million pieces are common; pieces as small as \$100,000 are issued, but trade at price concessions in the secondary market. CDs sold at a discount like Treasury bills have also made their appearance. Three- and six-month CDs are the most popular, and marketable, maturities.

Variable rate CDs are actively issued because of the advantages they possess for both the buyer and the issuer. They generally offer a monthly or quarterly markup over the secondary

Chart 13 Rates: 3 Month CDs vs Federal Funds



market rate on one- or three-month CDs reported by the Federal Reserve Bank of New York. For example, a six-month variable might consist of six one-month CDs, each bearing a rate 15 basis points higher than the one-month secondary rate on the issue-date; repricing at the same spread would occur on five subsequent monthly dates. The buyer then has an instrument that will trade near par because it is always within a month of resetting at a market rate, a feature very attractive to money market mutual funds and others who do not want to speculate on interest rates. The issuer is able to borrow money more cheaply than on a straight six-month CD. Banks also issue rollover CDs (the "roly poly"), providing the buyer with a series of six-month CDs covering three years or longer with a uniform rate on each maturity that is slightly lower than the rate at which the bank would sell the longer maturity. The six-month maturities offer greater liquidity in the secondary market, but the market risk of a fixed coupon is about the same as for the longer maturity instrument.

About 30 dealers are reasonably active in making a secondary market in CDs. Over half are nonbank firms, most of them active in Treasury securities and other short-term instruments. Bank dealers also make markets in CDs, though Federal Reserve regulations prevent a bank from buying back its own CDs. Dealers normally maintain inventories of the first, and some second tier, names for their retail customers, financing them through bank loans or repurchase agreements. Financing rates are generally higher than those prevailing on Treasury securities, in recognition of their lesser marketability and somewhat greater credit risk. Dealers quote bid and offer spreads to retail customers that range upward from 10 basis points depending on market conditions. The market is very competitive. Large customers, such as the money market mutual funds, can often buy secondary issues at 2 or 3 basis points below the bid side of the market.

Dealers manage the interest rate risk of their positions by active trading with customers and other dealers and by hedging positions in the cash or futures markets. Daily transactions in the dealer market averaged about \$5 billion at the end of 1981. Dealers actively engaged in the secondary market often use brokers to trade with each other. The top ten names constitute good delivery on interdealer runs, while other names are traded "off the run". Dealers hedge positions by going short Treasury bills in either the cash or future market. The hedge is far from perfect,

since bill and CD rates often move by quite different amounts. In 1981 trading began in a futures contract for the CDs of top-name banks with trading most active on the International Money Market in Chicago.

The Federal Reserve Act in 1913 authorized U.S. banks for the first time to engage in acceptance financing of the domestic and foreign trade of their customers. Nurtured by the Federal Reserve, the market in bankers' acceptances burgeoned to finance a significant share of trade denominated in dollars, involving the U.S. and foreign countries (see Box A, pages 70-71). Federal Reserve regulations continue to govern the issuance of most acceptances, limiting their use to short-term, self-liquidating commercial transactions. Acceptances in excess of 100 percent of the bank's capital and surplus are subject to Federal Reserve requirements, an effective limit on the amount of acceptance credit extended.

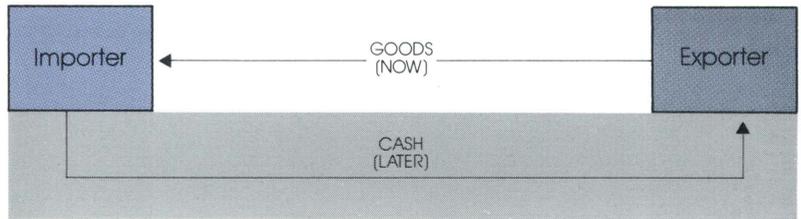
3. Bankers' Acceptances

The bankers' acceptance available from banks or the dealer market is a prime short-term investment since both the bank and its customer are legally obligated to pay it at maturity. Acceptances are written in round lots of \$1 million to \$5 million with still larger transactions usually broken into a number of such pieces for ease in marketing to major investors; pieces down to \$25,000 are a popular outlet for individual investors when interest rates are high. Over 20 firms make active markets, buying acceptances from the accepting banks and retailing them to corporations, government agencies, foreign investors, banks, and other financial institutions. Secondary market trading of the larger pieces has grown significantly with dealers typically quoting a bid-offer spread of 10 basis points. Dealers also use brokers to facilitate trading with other dealers, preserving their own anonymity; the cost is one basis point to the originator of the trade. Dealers finance their positions with bank loans or repurchase agreements with a wide variety of investors.

Bankers' acceptances, like CDs, trade in a tiered market that reflects principally the size of the accepting banks. The first tier consists of about ten of the larger banks. Beyond that there is a broad amorphous grouping of perhaps 50 banks — including some foreign branches and agencies as well as the Edge Act Corporations of banks outside New York. Acceptances of these banks trade at rates ranging from 1/8 to 1/2 percentage points higher than top tier banks. A smaller group of banks trade in-

Box A Financing Through Bankers' Acceptances
Chart 14

If an Importer and an Exporter arrange a delayed payment transaction, the seller must assume the risk that the buyer may be unable to pay...



but if the same basic transaction is arranged with a bank guaranteeing payment, the risk is transferred to the bank.

-  Substantial Credit Risk
-  Minor Credit Risk
-  Typically an acceptance is purchased (discounted) first by the accepting bank and then resold (rediscounted) to another investor.

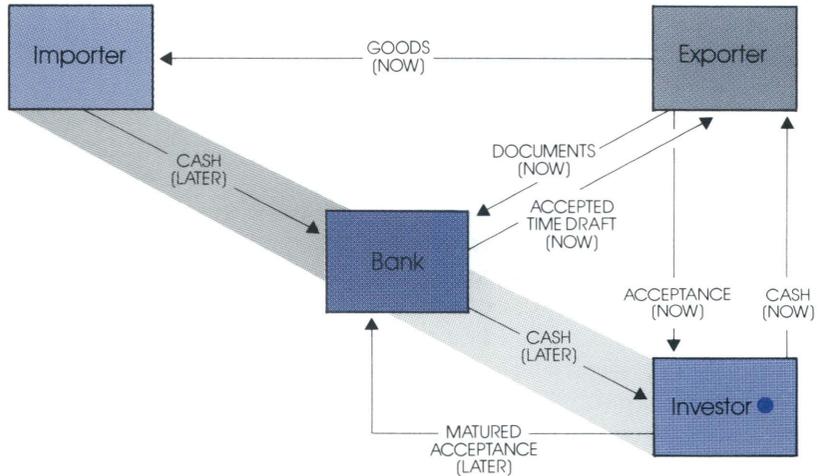


Chart reprinted from William Melton and Jean Mahr, "Bankers' Acceptances", Quarterly Review (Federal Reserve Bank of New York), Summer 1981 p 40.

frequently at even wider spreads. Japanese agency banks are notable participants, financing at a premium rate not only trade between Japan and the U.S., but between Japan and other countries as well. Other originators are the Edge Act subsidiaries of major U.S. banks, which conduct international business for the parent company.

The Federal Reserve remains an important factor in the acceptance market. Its regulations establish the eligibility of acceptances either for sale to the Federal Reserve trading desk under repurchase agreement or for discounting at the discount windows of the Reserve Banks. Eligibility at the window is limited to transactions involving original maturities of six months or less for foreign and domestic trade, or for storage. Also eligible are dollar-exchange acceptances drawn by approved countries

In the course of international trade, importers and exporters find it advantageous to organize transactions in such a way that the importer does not pay until a specified date in the future. However, in the absence of information on the creditworthiness of the importer, the exporter may be reluctant to extend the credit. Bankers' acceptances are financial instruments which bridge this difficulty; they substitute the bank's creditworthiness for that of the importer. The bank acts as intermediary by guaranteeing to make the payment for the goods on the specified date. The bank guarantees payment by "accepting" a time draft (or order to pay) drawn on it by the exporter. The bank charges the importer a fee, which is usually about 50 basis points but may be larger or smaller, depending on competitive conditions and the creditworthiness of the importer. The accepting bank either sells the acceptance at a discount to a dealer in the secondary market or holds it in its portfolio as an investment. In either case the exporter receives immediate payment for his shipment. At maturity the bank receives payment from the importer and pays the holder of the acceptances (see Chart 14, page 70) Acceptances are also used to finance trade between foreign countries as well as other transactions.

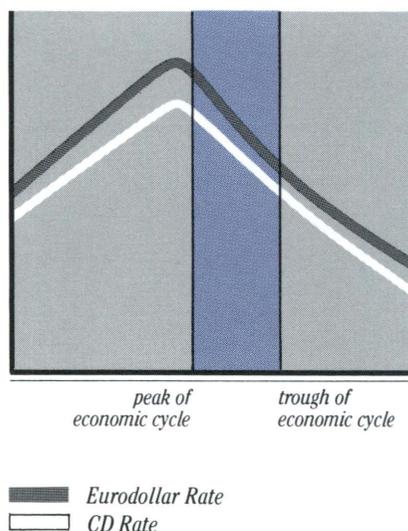
for three months or less to finance seasonal needs. Reserve requirements apply to bills originally written to mature in over six months, and to finance bills issued to raise working capital.

For over 60 years the Federal Reserve trading desk in New York was an active buyer of acceptances for the System's own account. In 1977 the Federal Open Market Committee decided that its active support of the market was no longer necessary. The System continues to buy acceptances under short-term repurchase agreements when this suits its reserve management purposes. The trading desk also buys acceptances outright for foreign central banks on their instructions, but the New York Reserve Bank no longer guarantees them for such accounts as it did before late 1974.

4. The Eurodollar market

The U.S. money market is the national component of a global money market denominated in dollars. The international dimension is provided by the Eurodollar market, in which banks of all nations, the Eurobanks, take dollar deposits maturing from the next day to 5 years or more in the future. The market has two main components. On the one hand, the banks bid for the deposits of international corporations, investors, and governmental units to fund the loans being made to businesses and governments. On the other, the banks bid for the deposits of other banks, or place funds with them, using the interbank market to manage the balance between the maturities of their assets and their liabilities. The Eurobanks — which include the foreign branches and international banking facilities of U.S. banks — operate outside the reserve requirements and FDIC assessments that affect U.S. domestic banks. Accordingly, they can take deposits maturing within 14 days and pay depositors a higher interest rate than U.S. banks for the same all-inclusive cost. The Eurobanks are a very dynamic element in the world monetary system by virtue of this competitive advantage.

Chart 15 Rates: Eurodollar vs 3 Month CDs



International banks use the Euromarket to finance the major part of the overseas lending in dollars done by, or booked at, their foreign branches. The Euromarket also provides a significant source of financing for domestic banking operations in periods of heavy loan demand; it is also an important outlet for surplus funds, when domestic lending opportunities fall off. U.S. banks, and resident foreign banks, help keep Eurodollar rates closely parallel to those in the domestic money market. Changes in Federal funds, and other short-term U.S., rates rapidly affect the Eurodollar market. Both the overnight rate and the key 6-month Eurodollar rate move in tandem with their domestic counterparts (see Chart 15).

The mainstay of the Eurodollar market in London and around the world is the non-negotiable, fixed-term time deposit. The major banks post the rates at which they are willing to bid for, and offer, deposits of the most popular maturities — money on call, overnight, one week, 1 to 6 months, and 1 to 5 years. In London, a 15 $\frac{3}{4}$ - $\frac{5}{8}$ quote for 6-month money indicates that the bank is willing to place money at 15 $\frac{3}{4}$ percent or pay 15 $\frac{5}{8}$ percent. Banks do a sizable volume of business directly with customers, raising the bid if more funds are needed. The bulk of deposits taken are within one year, but multiple year maturities

are considerably more common than in the domestic CD market, partly reflecting placements by members of OPEC.

In contrast to the U.S. CD market, brokers play a major role. They work assiduously to bring bidders and placers of funds together, compensated by a fee of 0.02 percent — 2 basis points, from each party. Placements typically range upward from \$1 million to as high as \$50 million. A handful of British firms with large staffs provide up-to-the-minute information on the market to the several hundred banks operating in the market. Their telephones and telexes link them to participants all over the world. The market follows the sun from regional centers in Singapore and Hong Kong to Bahrain, on to London and continental centers, and then to New York.

The U.S. banks are major players, both through their overseas branches and the head office, which in most cases controls the global “dollar book”. The head office generally conducts the funding side of the off-shore operations booked in Nassau, Cayman Islands, and Panama branches — which operate on New York time. Beginning in December 1981 U.S. and foreign banks became able to conduct international operations in international banking facilities (IBFs), which were freed from U.S. reserve requirements and taxation. Banks in the European Economic Community, Japan, the eastern bloc, OPEC, and the developing countries are also important participants as bidders for, or placers of, funds.

The negotiable Eurodollar CD, introduced in 1966, has become increasingly popular among U.S., and to a lesser extent, continental investors. Patterned after the domestic instrument, Eurodollar CDs are usually issued for maturities of one year or less in minimum pieces of \$1 million. They are delivered and held in London, and paid in New York by telegraphic transfer from the London issuers. Branches of U.S. banks are the principal issuers, but British banks and branches of Canadian, continental and Japanese banks are also important. The negotiability feature enables most banks to sell CDs at rates below those prevailing on time deposits of similar maturity; the savings ranges upward from 25 basis points. Eurodollar CD rates are generally 25 basis points or so higher than those on domestic CDs, but the spread can be wider on occasion. The spread reflects the absence of reserve requirements on the issuing branch, the lesser marketability, and the possibility that the host government could restrict the withdrawal of funds. (At times, U.S. banks have

incurred a reserve requirement on funds repatriated to the head office.)

London branches of U.S. investment firms, as well as British merchant banks and discount houses, provide a secondary market that is active, but less so than the domestic CD market. The U.S. firms have a dominant position because a very large share of Eurodollar CDs — reportedly above three quarters — are sold to corporations, banks, and a wide range of other short-term investors in the United States. British firms have sought to expand their U.S. sales through establishing New York outposts or entering joint ventures with domestic U.S. dealers. The quoted bid-asked spread in the secondary market is usually 10 basis points with \$1 million the basic trading unit. Settlement is made in New York in clearing house funds two days after the trade, but delivery and custody of the CDs are in London. U.S. dealers also make an active market in New York for these Eurodollar CDs.

The Nonbank Money Market

1. The Treasury Market

a. *The Stock in Trade: Government Securities.* The U.S. Treasury is the pre-eminent issuer of short-term paper in the money market. Each week on Monday, or the preceding Friday when Monday is a holiday, the Treasury sells a pre-announced amount of 3- and 6-month bills. Bids are received up to 1:30 p.m. Eastern time at each of the 12 Federal Reserve Banks and their 24 branches. Noncompetitive tenders are accepted up to a specified size limit, to be awarded at the average price of competitive bids. Competitive bidders specify in their tenders the price that they are willing to pay in Federal funds on Thursday of that week in return for the Treasury's promise to pay par at maturity. A dealer in Government securities, for example, might tender for \$10 million par value of 6-month bills at a price of 93.933 — involving a payment of \$9,393,300 against the Treasury's obligation to pay \$10 million six months hence. The discount earned would be equivalent to a rate of discount of 12 percent of the face value of the bills, figured on the 360-day basis used by all money market instruments. Converted to simple interest on the amount of money actually invested on a 365-day basis, the bond equivalent yield would be 12.95 percent (see Chart 16, page 75).

Each Reserve Bank office wires to the Treasury the dollar volume of bids received at each price and the amount of noncompetitive bids. The Treasury announces late in the day the lowest price at which bids have been accepted for each bill (the stop-

out price), the average price for each (at which the noncompetitive awards were made), and the corresponding rates of discount and bond equivalent yields. Every four weeks the Treasury sells a 52-week bill, usually called a year bill, in a similar auction.

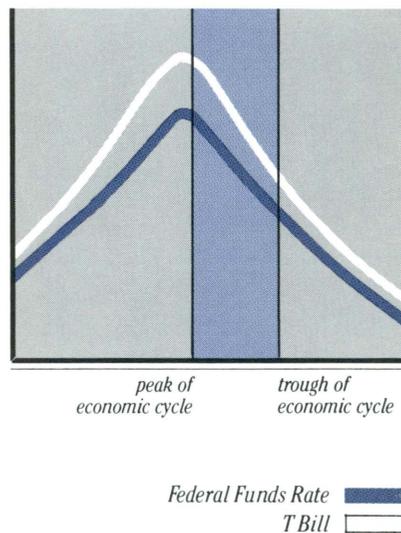
The Treasury's regular bill auctions are an important part of its program for managing the U.S. public debt, which stood at \$1 trillion at the end of 1981. The marketable debt, which is traded in an active secondary market, accounted for about three quarters of this. The remainder consisted of nonmarketable securities — for example, savings bonds and those sold principally to Government investment accounts and foreign governments.

In addition to bills, the marketable debt includes *notes* and *bonds*, which typically bear semiannual interest coupons and are redeemed at par at maturity. Notes have an original maturity of up to ten years, bonds a maturity of over ten years. In its orderly management of the debt, the Treasury routinely auctions 2-year notes each month; 4- to 10-year notes, as well as 15- to 30-year bonds, are sold quarterly. In auctions of coupon securities, bidding is usually on the basis of yield to maturity; after the auction the Treasury establishes the coupon rate that produces an issue price slightly below par.

Treasury securities, stretching from the bills maturing on the next Thursday to 30-year bonds, give the investor ample choice for meeting his own maturity requirements. The secondary market for these issues provides the reference yield curve for all participants in both the money and capital markets. Treasury issues are held chiefly in book entry form at the regional Reserve Banks and can be readily transferred over the Federal Reserve wire network to buyers throughout the country.

For investors, Treasury bills offer a security free of credit risk, a matchless secondary market, and income exempt from state and local taxes. Banks, thrift institutions, and other financial businesses use bills as a basic element of a liquid portfolio for meeting seasonal and other predictable demands for funds as well as for coping with unexpected financial drains. Business corporations and state and local government bodies use Treasury bills as income earning investments. Foreign central banks hold a large share of their dollar exchange assets in such bills, the better to cope with sudden adverse swings in their international payments. Finally, the Federal Reserve System finds Treasury bills

Chart 16 Rates: 3 Month T Bills vs Federal Funds



ideally suited to the management of bank reserves. The secondary market is so large that the trading desk can buy or sell large amounts of Treasury bills with little impact on bill rates.

b. *The Role of Dealers.* The secondary market in Government securities is an over-the-telephone market, in which about three dozen dealers stand ready to bid for, and offer, Treasury issues. The dozen or so bank dealers and the 20-25 nonbank dealers that make up the market have one thing in common. They deal for their own account, putting their capital at risk. In the most actively traded Treasury bills, competition is keen. The spread between the bid and asked markets quoted retail customers is often only 2 basis points — \$50 per million dollars on a 3-month maturity. Most dealers are prepared to make markets on the telephone for \$5 or \$10 million of each issue to a total of perhaps \$50 million; the larger dealers will often deal for up to several hundred million dollars. The primary dealers use half a dozen brokers to post anonymous bids and offers on issues they wish to trade; the broker is compensated by the dealer who hits a bid or takes an offering. Market spreads widen with maturity since the risk of price fluctuation increases. Many firms keep a lower profile in issues maturing beyond two years or so. Still, almost half of the dealers maintain markets of respectable size in securities maturing in five years or beyond. The market in even the longest issues is second to none among capital markets around the world. In recent years the developing futures markets in bills and bonds have often had considerable impact on the cash market.

Government securities dealers operate three interlocking businesses. They make markets to customers and provide information, analysis and advice to stimulate trading activity and customer loyalty. To be able to meet customer needs, they maintain inventories of Government and other securities in which they deal, financing them with bank loans or repurchase agreements with corporations or other lenders. Finally, they manage their securities positions with a view to profiting from both short- and long-term swings in interest rates.

Profitability in a dealer firm stems from the three businesses: (1) trading profit from the day-to-day astuteness of traders earning the spread between bid and offer prices in trading with customers and other dealers, (2) financing or “carry” profit from earning a higher return on securities owned than the cost of financing the securities, and (3) position profit from being short

securities in falling markets and being long in rising markets, or from correctly anticipating changes in the shape of the yield curve. In practice, dealers are more apt to think of profits as stemming either from trading or arbitrage. Arbitrages can be quite complicated — involving the cash and futures markets as well as different financing strategies. Many dealers have in-house traders who specialize in such transactions which may be kept separate from the trading positions of those making markets to customers.

For most dealers, maintaining a sizable customer base is essential. Knowledge of what customer preferences are, what securities they hold, and what they are doing, or thinking of doing, enables the dealer to make markets intelligently, to judge the likely market impact of prospective news developments, and to manage his own positions profitably. The key people in the effort are the trader, who must make his markets close enough to do business, and the salesman, who keeps the customer in touch with the market and the firm in touch with its retail base. Many nonbank firms have branches in important domestic and international centers to maintain close personal contact with both large and small customers; some of the major brokerage firms also draw in retail customers through the registered representatives in their large network of stock-oriented branches. Other nonbank dealers, and most of the banks, rely principally on direct telephone or telex contacts, followed up with periodic personal visits. Leased wire information systems, which keep the customer abreast of the latest market and news developments, have greatly reduced the need for routine informational calls by salesmen. The sales effort has shifted toward providing computerized information on trading spreads and arbitrage possibilities, as well as up-to-the minute analyses of economic developments and the Federal Reserve's policy posture. The rapid availability of information and analysis has eroded somewhat the dealers' comparative advantage in day-to-day trading. But dealers' bid-asked margins have widened to reflect the greater volatility in interest rates that followed the Federal Reserve's adoption of a supply-oriented approach to reserve management.

The financing of dealer positions is a business that has developed a new life of its own. Years ago, the dealer searched out the cheapest source of financing to increase the positive interest rate "carry" earned on his position (or to reduce the negative carry in periods of high interest rates). Both bank and nonbank

dealers developed the sale of Government and Federal agency securities to corporations and other lenders under agreements to repurchase the securities a day, a week, or several months later at the same price plus an agreed rate of interest for the period. Such repos allowed investors to earn a return on very short-term money whereas banks could then pay no interest on deposits of less than 30 days. The financing cost to the dealer was typically below the Federal funds rate or the dealer loan rates posted by the major banks — usually by an appreciable amount. Most lenders allowed the dealers the right of substitution of collateral, so that the dealer could sell securities on demand, replacing them with others.

Recently, bank and nonbank dealers have run matched books as well. They buy Government securities for an extended period under a reverse repo from a holder who needs funds. Then they repo the securities acquired for an equivalent period at a lower interest rate than they charge the seller. In effect, dealers have gone into the banking business, taking care that the credit quality of both customers assures the reversal of the transaction, which carries no risk of price fluctuation. Dealers also protect themselves by taking a greater margin of collateral on the securities acquired than they give when putting them out on repo. Dealers may also run an “unmatched book” — financing securities acquired under 60- or 90-day reverse repos with shorter term repos to increase the interest rate spread earned. Such activity runs the risk, of course, that financing costs may rise in the interim and result in a loss rather than a profit.

Dealer position-taking is basically a bet on the future course of interest rates. The unmatched book is a bet on future financing costs, since the resale value of the securities is fixed in the original contract, the reverse repo. In a straightforward position play, a dealer may purchase six-month Treasury bills in the auction, expecting to finance at a positive carry for 3 months and sell them at three months to maturity for a 20 basis points gain, about the average difference between 3- and 6-month bills rates over the cycle. If interest rates fall over the interval, both the carry earned and sales gain would be larger. But if interest rates rose sharply, the carry could become negative at the same time the price of the bill is declining. All straight position decisions involve weighing the expected behavior of both dealer financing costs and the prices of Government securities.

Government securities dealers are hypersensitive to the inter-

est rate outlook because their positions at risk can be very large relative to their equity. A multiple as large as 50, aside from the matched book, is not uncommon for a nonbank dealer expecting a decline in interest rates. A one percent rise in the price of securities held in such a situation would increase the dealer's capital by 50 percent; a similar drop would wipe out half of present capital. In practice, dealers tend to make substantial gains during recessions when rates decline through acquiring and financing an outright position. When interest rates are choppy or rise persistently, however, dealers often encounter moderate-to-large losses — in part, because it is difficult to maintain the effective markets customers expect with a sizable net short position. Moreover, borrowing securities to sell short requires pledging other securities and paying a borrowing fee of 1/2 percentage point or more — imposing costs that require securities prices to fall promptly for the dealer just to break even.

Two recent market innovations have made going short significantly cheaper. First, there has been the growth of the repo market for specific securities. Dealers bid for the securities they want to sell short, lending the cash generated by a short sale at a rate generally 20 to 50 basis points below the repo rate prevailing for Treasury issues. The net cost is usually cheaper than the standard borrowing fee-collateral route. Secondly, an active futures market in Treasury bills has developed on the International Monetary Market (IMM) in Chicago and in bonds and GNMA securities on the Chicago Board of Trade (CBT).⁶ Through these contracts, dealers can offset the positions they must maintain to service customers — or establish short positions — by entering futures contracts to deliver the specified securities at a limited number of specified dates, which reach out over two years. The commission cost is very small — an outside limit of \$60 per million dollars for a round trip. The futures exchanges, which are private corporations of exchange members, issue contracts to both buyers and sellers, each of whom must meet the low margins set — e.g., \$2,000 per \$1 million on Treasury bills. A clearing corporation marks each contract to market daily, requiring additional margin when a margin drops below the required maintenance level — \$1,500 per \$1 million for Treasury bills.

⁶A contract for notes maturing in 6-1/2 to 10 years began trading on the Chicago Board of Trade in May 1982.

The futures markets have grown rapidly, attracting a large amount of new speculative capital to interest rate futures by: (1) the low margin, (2) marking prices to market daily, and (3) protecting the participants against credit risk by interposing the clearing corporation's capital between buyers and sellers. The growth of futures market activity has spawned so much arbitrage and trading between the cash and futures market that they function as a single market most of the time.

The Government securities dealers as a group are not only linked to other sectors of the international money market but also to the rest of the capital market. Through the bank's money desk, bank dealer departments keep in close touch with the markets for Federal funds, CDs, bankers' acceptances, and overnight loans on money market and stock exchange collateral. They watch the Euro-dollar and foreign exchange markets closely since international capital flows influence both the demand for Government securities and the actions of policymakers. Bank dealer departments often operate in close physical proximity to the bank department responsible for trading tax-exempt securities of all maturities.

Both bank and nonbank dealers typically trade securities of Federally sponsored agencies; many also trade the mortgage-backed securities guaranteed by the Government National Mortgage Association GNMA. Among the nonbank firms several specialize in Government and Federal agency issues and a limited array of other money market instruments — CDs, bankers' acceptances, and repos and reverse repos. Others are departments of multi-line firms. At mid-1981, in addition to activity in other money market instruments, 9 were active in commercial paper, 17 in corporate and 16 in municipal securities, 15 in block trading of corporate stock and 13 in the stock market with retail customers. A further 6 had mortgage banking affiliates while 18 functioned as investment bankers to corporations and state and local governments.

The international linkages of the Government securities dealers are also impressive. At least 9 bank and 20 nonbank dealers at mid-1981 were active in trading with foreign central banks and other international investors. The banks, whose dealer departments reported daily to the Federal Reserve Bank of New York, were all represented with branch offices in London; many also had branches in other important money centers such as Frankfurt, Paris, Zurich, Hong Kong, Singapore, and Tokyo. Among the

nonbank dealers, 17 firms traded Eurodollar CDs in London, 14 were active in Eurodollar bonds, and 17 participated in investment banking abroad.

The Federal Reserve Bank of New York has a special relationship with the Government securities market and the Treasury. The trading desk's activities as agent for the FOMC, and also for foreign central bank accounts, make it the largest single customer of most dealers. The Bank collects voluminous reports on the daily trading activity of dealers as well as monthly and annual reports on dealer profitability. The trading desk keeps watch daily on the performance of the market, informing the Treasury regularly of what is happening and collecting the quotations that provide snapshots of prices several times a day. Desk officers give close and continuing counsel to Treasury officials on debt management issues.

The manager of the System open market account for domestic operations provides continuity, and leadership, in ongoing official contacts with the dealer community. He determines when a dealer's performance qualifies him to be added, first to the list of dealers reporting daily to the Reserve Bank and then to the list of those trading with the Reserve Bank. He or an associate serves with senior Treasury and Board staff representatives on a committee that exercises broad surveillance over market reports, practices, and problems. Officers of the Fed's trading desk serve as liaison with the association of primary dealers and the senior officers of individual dealers. They oversee staff visits to dealer firms to review reporting procedures, management controls and market practices.

Second only to Treasury securities in credit quality and marketability are the short-term and longer dated securities of several Federally sponsored agencies. Five of these agencies, which were set up with U.S. Government capital and supervision, have since been converted to private ownership, though they remain subject to Federal supervision. Most other sponsored agencies sell their issues to the Federal Financing Bank, which is financed by direct Treasury borrowing.

Three of the five principal agencies extend credit to farmers, are owned by them or their associations, and finance themselves with debt obligations that are the collective responsibility of all three agencies. The Banks for Cooperatives lend for short and intermediate terms in connection with the marketing of agricul-

2. The Market for Federally Sponsored Agency Securities

tural products; the Federal Intermediate Credit Banks lend for similar maturities to production credit associations, which in turn lend directly to farmers for production. The Federal Land Banks supply long-term credit directly to farmers for the purchase of livestock, farm machinery and land.

The Federal Home Loan Banks, supervised by the FHLB Board, provide loans to member savings and loan associations and other thrift institutions as a means of fostering the flow of funds into home mortgages; they are owned by the member associations. The Federal National Mortgage Association (FNMA), whose stock is traded on the New York Stock Exchange, operates with guidance from the Secretary of Housing and Urban Development. When home financing is scarce, it buys government-insured and government-guaranteed mortgages, and conventional private mortgages, in the secondary market. It sells mortgages when funds are readily available.

In addition, two Government agencies — the Government National Mortgage Association (GNMA) and the Federal Home Loan Mortgage Corporation (FHLMC) — operate in the long-term credit market to help finance housing. GNMA functions principally by guaranteeing pass-through securities. These entitle the investor to a pro rata share of the principal and interest payments received by individual pools of government-guaranteed mortgages, pools assembled by mortgage bankers. FHLMC buys conventional residential mortgages to foster a secondary market for them; it sells pass-through securities and other bonds to finance its activities.

The agencies use a designated fiscal agent to manage the sale of their obligations to investors. One serves the three farm credit agencies, another the Federal Home Loan Banks and the FHL Mortgage Corporation, and a third FNMA. The fiscal agents sell their coupon securities to the public through separate selling groups ranging from about 100 to 175 banks and securities firms. Members of each group are allocated securities on the basis of their past performance as distributors; fees paid to each member range from \$0.50 to \$3.00 per \$1,000, depending on the maturity of the security being sold.

The fiscal agents rely on major members of their selling group for advice in choosing the maturities to be offered and the interest coupons necessary to sell the securities. Members of the group characteristically take up the securities even when they think the pricing is aggressive because of the long-term prof-

itability of the relationship. The farm credit agencies sell 6- and 9-month paper monthly, while maturities of ten years or more are sold on a quarterly cycle. Both the Federal Home Loan Banks and FNMA sell issues at least quarterly; they sell more frequently when housing credit demands are large. The fiscal agents also sell discount notes maturing in a range of 5 to 360 days through designated dealers, who receive a commission of 5 basis points (0.05 percent) on notes they distribute. Such notes are increased or reduced in the light of cash needs between regular financings; rates are adjusted flexibly to attract funds as needed. Most of the paper sold is in the 30- to 60-day area.

Agency issues attract wide investor participation, because of their government sponsorship and supervision and the good secondary market. The securities of the five sponsored agencies trade at yields similar to those on corresponding Treasury issues. While the yield differentials are usually small — often as little as 5 basis points, they have risen to 100 basis points or more during periods of tight money when quality spreads typically widen. The Farm Credit and Federal Home Loan Bank issues enjoy exemption of their income from state and local taxation.

Most of the dealers in Government securities make secondary markets in these issues, although trading in many outstanding issues is inactive. The size of some issues is small — as little as \$200 million. Perhaps only a dozen dealers are willing to make bids and offers in most of the over 200 outstanding issues. Bid-offer spreads are related to the amount of activity in the secondary market. They are generally wider than those on Government securities of corresponding maturity, but large, recently offered issues usually trade at spreads of 2/32 for the shorter issues to 8/32 on longer ones. Federal agency discount notes, like commercial paper, do not enjoy much of a secondary market. A dealer who distributes the notes is usually prepared to make a bid to a customer who has a pressing need to sell notes — but customers are generally expected to hold the notes to maturity.

One of the most rapidly growing sectors of the money market in recent years has been the market for the short-term promissory notes of credit worthy financial and other business

3. *Commercial Paper*⁷

⁷*This section draws heavily on material provided by Mr. George M. Van Cleave, partner of Goldman, Sachs & Co.*

enterprises. Companies are attracted by borrowing costs below those available from banks, investors by the yield premium they offer over Treasury issues. To be exempt from registration with the Securities and Exchange Commission (SEC), such notes must mature in 270 days or less and be issued for working capital purposes, for example, to finance inventories and accounts receivable.

Commercial paper is sold to money market investors either *directly* by a firm's own sales force or through a *dealer*, who provides a single sales force for many borrowers. Direct placement is characteristic of large finance and credit companies, which are often affiliates of automobile and other manufacturers and bank holding companies. Close to 55 percent of the over \$160 billion in commercial paper outstanding at the end of 1981 was placed directly by them with customers. The remainder was placed by a group of ten major dealers, which have specialized sales forces that typically spend 90 percent of their time selling commercial paper. Included among about 1,000 companies issuing through dealers are several hundred industrial companies and public utilities, and over 100 each of bank holding companies and smaller finance companies. Foreign banks and a few foreign government agencies also borrow in the market.

To sell commercial paper, a company must have a good credit rating and provide back-up bank lines of credit, which can be drawn on to pay off maturing paper, if necessary. After a careful review of a company's balance sheet and operations, the credit rating companies — Standard and Poor's (S&P), Moody's, and Fitch's — assign numerical ratings. The S&P scale of A-1, A-2, or A-3 ratings and the Moody's scale of P-1, P-2, or P-3 are the most widely referred to. Perhaps three-quarters of all paper sold is in the top A-1, P-1 grade, and most of the remainder is graded A-2 or P-2. Investors generally shy away from lower-graded paper; the failure of Penn Central in 1970 reminded buyers that credit risks can be real.

Most paper issuers must also establish bank credit lines that will cover the amount of paper they expect to have outstanding. The rating agencies do not deem full coverage necessary for financial institutions with liquid portfolios or ready access to a central lending agency—e.g., the Federal Home Loan Banks. In theory bank credit lines require maintenance of deposits with the bank equal to 10 percent of the credit line, with an additional compensating balance of 10 percent when the line is drawn on; in

practice, issuers rarely maintain a balance at such a level. Some issuers pay a fee rather than maintain compensating balances. Smaller issuers may sell “documented discount notes” under the guarantee of a bank’s letter of credit.

Allowing for the cost of the bank back-up, issuers of commercial paper can usually save between 1 and 2 percentage points over the cost of the bank prime rate, compensating balances or bank fees. More recently, domestic and foreign banks have recaptured some of this business by making loans for 30 days or less at a markup over the cost of funds to the bank.

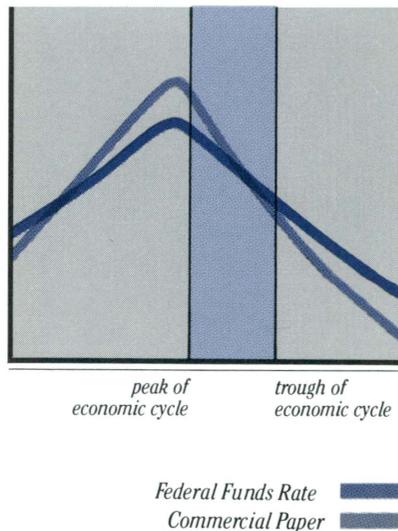
Commercial paper is sold at a discount against same day payment in Federal funds; it is redeemed at par at maturity. The smallest denomination for dealer-placed paper is \$100,000, but blocks of \$5 or \$10 million are common, especially on directly placed paper. The paper is usually tailored to the specific maturity dates desired by the customer. While directly placed paper often has only a week or so to run, the 30-day maturity is very popular; most paper sold matures within 60 days. Paper is lodged by the company with a New York bank, which countersigns and delivers the notes to the commercial paper dealer against payment.

Dealers usually take down paper as it is sold at quoted rates, but they also are prepared to buy paper at a yield concession for inventory when an issuing company’s needs are pressing. Some dealers carry very little inventory for their own account; inventories of others may run above \$100 million on occasion, typically financed at rates above those prevailing for Treasury issues. Dealers are usually prepared to buy back paper they have sold to an investor, but in fact only a small percentage does come back (see Chart 17).

Dealer profitability stems principally from the spread of up to 1/8 of a percentage point between the rate at which paper is bought and sold. The paper dealers hold in inventory can be financed at a positive carry during recessionary periods; carry profits usually outweigh the risk of loss from inventory in such periods. However, this changes in periods of strong credit demands when carry becomes negative. Then, rates and positions must be adjusted quickly to avoid loss.

Investors in commercial paper tend to be weighted somewhat toward financial institutions, which are used to making their own credit judgments. Banks are large buyers for their own account,

Chart 17 Rates: Commercial Paper vs Federal Funds



for their trust departments, which manage customer investments, and for the account of corporate customers (through their money desks). Insurance companies and business corporations are important buyers. Money market mutual funds and other investment companies find commercial paper's yields and short maturities especially attractive.

4. *Municipal Notes*

State and local governments finance short-term cash requirements through the sale of municipal notes maturing in a year or less. Such notes are issued by the governmental units themselves in anticipation of taxes, other revenues or the proceeds of selling longer term bonds. In addition, the U.S. Department of Housing and Urban Development auctions project notes every other month on behalf of communities using the funds to finance Federally sponsored low-cost housing or other projects. The income from both types of notes is exempt from Federal income taxation; the project notes also are backed by the full faith and credit of the United States Government and their income is exempt from state taxes. While municipal securities are exempt from registration under the Federal securities laws, issuers provide opinions as to the legality of issuance and have provided in recent years detailed information about their financial affairs in order to facilitate the sale of their issues.

The public sale of notes, as opposed to borrowing from local banks on a negotiated basis, usually involves competitive bidding. Several hundred commercial banks or investment bankers participate, but many operate regionally rather than nationally. The size of sales ranges from hundreds of millions of dollars for such large issuers as California and New York State down to a few million dollars. For the bidders, the market is far from homogeneous. They rely on Moody's classification of issuers into one of four classes (MIG 1 to 4) to help classify issues of the thousands of local issuers. Typically, groups of banks and non-bank dealers will bid together, often relying on the credit evaluations of banks that follow the issuer's affairs closely. Bidding takes into account the rates currently available in the secondary market, the rate outlook for the immediate future, and customer interest. The most active banks and dealers make secondary markets for the larger issues and those in which they have been involved, but market spreads are usually 5 basis points or more. Trades of \$50 million or more may occur in the large active issues, but for many smaller issues it is often a negotiated mar-

ket — not surprisingly, given the hundreds of dealers and thousands of issuers.

Investors in municipal notes, as in municipal bonds, are typically those to whom the tax-exempt feature is important. Commercial banks are major holders, as are casualty insurance companies and individual investors in high tax brackets. Nonfinancial corporations, too, are often substantial buyers. Life insurance companies and financial institutions that are taxed at low rates on their income rarely find the low yields attractive when compared to those available on Treasury or other taxable securities.

5

The FOMC Meeting — Setting Operational Strategy

At each of its eight meetings a year the Federal Open Market Committee instructs the Federal Reserve Bank of New York how the trading desk is to conduct operations until the next meeting. These instructions embody a strategy for achieving the annual objectives for monetary and credit growth. But it would be a mistake to think that the regular meetings focus chiefly on technical issues involving monetary aggregates. At each meeting the primary concern is how the economy is likely to perform in relation to the nation's goals. The 12 voting members, and the seven non-voting Reserve Bank presidents who attend, reach their own judgments on the interaction of financial and economic forces. Then they give the desk the short-term objectives that provide monetary policy with its cutting edge.

Reports of the Managers

The FOMC's regular meetings take place in the boardroom of the Board of Governors in Washington. The seven governors and 12 Reserve Bank presidents gather around a long conference table under a high ceiling. Also seated around the table are the secretary of the FOMC, senior advisers to the FOMC, and the managers for foreign exchange and domestic operations. Senior research officers of the Reserve Banks, other senior Board officials, and an officer from the New York Reserve Bank's domestic trading desk sit around the sides of the room, available to their principals if needed.

1. The Report on International Developments

The chairman opens the meeting. The first order of business involves reports by the managers for foreign exchange and domestic open market operations. The manager for foreign exchange operations, a senior officer of the New York Reserve Bank, reviews developments in the exchange markets during the period as well as any intervention by the foreign trading desk to maintain an orderly market for the dollar by buying or selling dollars against foreign currencies. Such actions, covered in more detail in written reports submitted previously, are reviewed and approved by the committee.

The FOMC is naturally interested in the manager's report on international developments, including the response of the exchange markets to U.S. monetary developments. The committee does not have the same degree of responsibility for exchange rate policy as for domestic monetary policy. Within the U.S. government, the Treasury takes the lead in formulating the interna-

tional financial policy of the United States. The Federal Reserve, as the nation's central bank, has close working relationships with foreign central banks and often executes foreign exchange transactions on their behalf in the U.S. market. The Federal Reserve plays an important technical and consultative role in policy matters touching the foreign exchange markets. The Chairman — drawing on the counsel of the New York Reserve Bank president, other FOMC members, the manager for foreign operations and the Board staff — exchanges views with the Treasury Secretary on what United States policy should be with regard to the foreign exchange markets. The Federal Reserve can operate on its own behalf under Treasury guidance in the foreign exchange markets and build up foreign currency balances of its own. The Federal Reserve also serves as agent for the Treasury in the Treasury's own foreign exchange operations.

The FOMC supervises the Federal Reserve's part in actual exchange operations, adopting general guidelines and monitoring activity. A special subcommittee is authorized to cope with the exigencies of changing market circumstances between meetings. Ever since 1973, foreign exchange operations have been undertaken from time to time to counter disorderly market conditions. The United States does not seek to achieve any particular range of exchange rates for the dollar in such operations.

In speaking to the FOMC, the manager for foreign operations often comments on the views expressed by the central bank governors of major industrial countries at their monthly meeting at the Bank for International Settlements (BIS) in Basle. At times, the chairman or one of the committee members (often the Board member having primary responsibility for international developments) will report on discussions of current issues with officials abroad or with the Treasury. At regular meetings committee members routinely question the manager about the exchange market and foreign central bank policies and operations. They may ask his views about the market reaction that would follow a move in the Federal Reserve discount rate or a more restrictive approach to supplying nonborrowed reserves. They often ask the Board staff about the U.S. balance-of-payments and international economic developments.

A major responsibility of the committee is to oversee the Federal Reserve swap network, reciprocal credit lines established between the Federal Reserve and other central banks. From

modest beginnings in 1962, by the end of 1981 the network had grown to \$30.1 billion of standby credit involving the Federal Reserve and 14 foreign central banks and the Bank for International Settlements.¹ The “swap” network enables the Federal Reserve or one of its partners to obtain the currency it needs for intervention in the foreign exchange markets. Such drawings are subject to repayment at the same exchange rate three months later. This credit facility, approved by the FOMC and foreign authorities in advance of need, enables the Federal Reserve, for example, to intervene on short notice in support of the dollar after clearing the swap drawing by telephone with the central bank supplying the currency needed. The drawings can be renewed for additional three-month terms by mutual consent. Over the years the FOMC has sought to maintain the principle that swap drawings are to be repaid in full within a year.² On occasion, the Federal Reserve’s partners have drawn on the swap network to obtain dollars to meet short-term needs.

The manager for foreign operations reports to the committee on those that are approaching maturity. He outlines current plans for the drawing party to repay, especially when the debts are more than six months old. The committee, aided by its staff, also reviews and approves additions to individual country swap lines and changes in the instructions under which the manager conducts foreign exchange operations.

2. *The Report on Domestic Operations*

Once necessary actions have been taken on the foreign exchange side, the committee turns to the manager for domestic operations, who reports on the implementation of the committee’s directive since the last meeting. The manager typically relates how nonborrowed and total reserves have behaved relative to their respective paths, which were based on the committee’s M1 and M2 objectives. He notes any changes made in the NBR path to accelerate bank responses to money supply deviations.

¹See Sam Y. Cross, “Treasury and Federal Reserve Foreign Exchange Operations,” *Quarterly Review* (Federal Reserve Bank of New York), Winter 1981-82.

²In recent years the U.S. has expanded its foreign currency resources by drawing down its reserve position at the IMF, selling Special Drawing Rights, and issuing foreign currency denominated securities in the capital markets of other countries. These operations are conducted by the U.S. Treasury, but the Federal Reserve has participated to the extent that some of the foreign currencies so acquired have been “warehoused” with the System. Also, at times when the dollar was in strong demand in the market, the Federal Reserve has accumulated foreign currency balances.

He also may comment on borrowing at the discount window and the Federal funds rate in relation to what might have been expected in view of the level of nonborrowed reserves achieved. Daily operations and changes in the System portfolio have already been reviewed fully in written reports, submitted by the manager in advance.

Speaking to the FOMC, the manager highlights changes in interest rates in the money and bond markets in the intermeeting period, with special emphasis on the Treasury market. He describes changes in market sentiment about the interest rate outlook. Shifts of mood may reflect how the monetary aggregates are behaving. Or they may reflect actual or anticipated Federal Reserve actions on the discount rate or reserve requirements. Or market attitudes may change in response to new economic information, the action of the foreign exchange markets, or Administration legislative or budgetary initiatives. The manager also advises the FOMC about prospective Treasury financing plans. Following his report, FOMC members may comment or ask the manager what the market's reaction would be to a change in the Federal Reserve discount rate or in the desk's operational objectives. Finally, the committee ratifies the operations conducted over the interval.

The Staff Input

At an ordinary committee meeting the staff updates and, at times, refines the more elaborate analyses presented in February and July, when the committee adopts its annual monetary and credit objectives. (See Chapter 2.) Beforehand, the staff sends the seven Board members and 12 Reserve Bank presidents the *green book*, which contains its latest forecast for the major sectors of the economy and for important price, production and employment data. The green book also covers financial and international developments.

1. *The Economic Outlook*

In an oral report, a senior staff officer gives the staff's appraisal of the current economic outlook, assuming monetary and credit growth at the rates adopted by the committee at its most recent semiannual meeting. He weaves significant economic data reported since the last meeting into an analysis of the economy's present direction and current inflationary pressures. Current estimates of the Federal budget are a key feature of the analysis. From the combination of oral and written reports, committee members obtain a comprehensive estimate of the economy's

future course. The principals raise questions of both fact and interpretation. They often query senior staff members on whether the forecast is more likely to err on the side of over- or underestimating growth or price inflation.

2. Policy Alternatives

The staff director for monetary policy next comments on the recent behavior of the monetary and credit aggregates. He describes the emerging relationships among the growth rates of M1, M2, and bank credit, commenting on whether they differ from the assumptions made at the time the FOMC adopted its annual objectives. He then analyzes the alternative short-run paths laid out for M1 and M2 in the *blue book* for the committee to consider in choosing its strategy for pursuing the annual objectives.

Each alternative specifies a different rate for the two aggregates over a period of months, and an associated wide range for the Federal funds rate. Also specified is an initial level for short-term adjustment borrowing from the Federal Reserve, which is to be used in constructing the path for nonborrowed reserves. For example, if the aggregates were currently below path, one alternative — call it A — might specify growth in M1 and M2 over the current calendar quarter at rates fast enough to bring them back to path in three months. Another — B — might specify growth that would return the aggregates to path in six months, while a third — C — might specify short-term growth at a lower rate. The Federal funds rate ranges and borrowing levels, associated with these monetary growth rates, would be lowest for the “A” alternative and highest for “C”. Similarly, if M1 and M2 were well above their desired path, the blue book alternatives might specify growth rates returning them to path, in, say, three or six months.

In preparing the blue book alternatives, the staff director and his colleagues estimate how these different Federal Reserve supply schedules will interact with the demands for money emanating from the economy to produce the desired growth in money and total reserves. They begin with simulations of the Board's monthly money market model, which estimates the response of consumers and other money holders to the interest rates resulting from pursuing nonborrowed reserve objectives. Both individuals and businesses respond to a rise in interest rates by economizing on M1 balances in relation to payment needs and current income. When rates fall, they tolerate higher balances at a given income level. The Board model suggests that about half of the influence on M1 takes place in two to three months.

The effect of interest rates on M1 balances has become less clear-cut with the rise in interest-paying substitutes for demand deposits. Automatic transfer services (ATS) allow movements from savings accounts to cover overdrafts in checking accounts. Negotiated order of withdrawal (NOW) accounts, repurchase agreements (RPs), and money market mutual funds are very close to cash; banks and others are also developing procedures for sweeping excess household and business deposits into accounts paying a market-related rate. M2, which now includes these instruments, responds more sluggishly to a rise in rates than before they were available. Moreover, there is uncertainty about the extent to which savings will flow directly to market instruments or to accounts included in the aggregates the committee is targeting.

Weighing these factors as best he can, the staff director details in the *blue book* the staff's current judgments of the growth in total reserves to be expected over the quarter under each alternative. The blue book also indicates how interest rates on short- and long-term obligations are expected to behave under each alternative between meetings.

In his appearance before the committee, the staff director relates the blue book alternatives to the committee's longer term objective. He might point out, for example, that alternative "A" in the above example would mean quarterly growth above the annual objectives and could raise doubts in the public's mind about the FOMC's proclaimed intent to reduce monetary growth. However, this alternative would also produce the most rapid near-term drop in interest rates should economic activity be weaker than the staff expected. At the other end of the spectrum, holding growth down, as in alternative "C", might well help reduce inflationary expectations. But the slower money growth and higher interest rates expected under C could lead to slower economic growth than the green book had forecast.

Under ground rules laid down by the chairman, each of the voting members of the FOMC and the seven nonvoting Reserve Bank presidents gives his view of how the economy is performing. The seven governors bring to the meeting a wide range of contacts with businessmen and others around the country, and with economic policymakers and staff members in the Administration, the Congress, and the independent agencies. In forming their views, the Reserve Bank presidents draw on their own ex-

changes with bankers, businessmen, government officials and others in their own regions. The staffs of the Reserve Banks prepare their own economic forecasts. They also contribute qualitative information on economic developments and thinking in their districts to the *red book*, which is produced and circulated in advance by the Reserve Banks.

1. *Sizing Up the Economic Situation*

The FOMC seeks to assess the momentum of the U.S. economy, to change monetary policy's emphasis in pursuit of balanced growth, and to defend its choices to Congress and the public. Personal assessments inevitably fuse value judgments with economic analysis. Each individual approaches the issues before the committee with a body of experience, and a measure of conviction about the economic issues facing the society. Should the Federal Reserve be primarily concerned at this point with restraining money growth and price inflation, or does the creation of more jobs deserve a higher priority?

Each speaker's analytical approach provides a framework for imposing order on the information available. Most policymakers tend to be eclectic in this respect, building their conclusions about the total economy from the spending dynamics evident in the consumer, business and government sectors. But they are mindful also of the lagged effects of monetary growth on future demand and prices. Emphases differ. Some will be especially interested in the housing and capital spending sectors, which they see as most affected by interest rate changes. Others will put a heavier emphasis on past monetary and/or credit expansion. Personal chemistry tends to affect the weight each attaches to incoming economic data.

The committee takes the staff's latest forecast of the economy as a benchmark for its discussion. Each of the 19 principals indicates briefly the areas of agreement or disagreement with the staff. Usually by the time half a dozen have spoken, the participants begin to sense whether their associates see the economy as stronger or weaker than the staff anticipates. Some participants make trenchant capsule analyses of their own. Others stress their particular concerns with signs of weakness or strength. A few participants may be sensitive to signs of weakness, a visceral tendency well known to their colleagues. Others emphasize price inflation or the dollar's performance as key indicators of the pressures monetary policy should address. Policymakers frequently stress how business and consumer ex-

pectations are likely to affect spending decisions and economic developments. By the time the roundup is over, most have given their economic views and also nodded in the direction of the policy position they will articulate later.

The committee's directive to the New York Bank recapitulates the economic developments reviewed at the meeting and directs that management of the reserve aggregates be consistent with specified growth in M1 and M2 over a period of several months. The directive also gives a range for the Federal funds rate, noting that the manager for domestic operations is to notify the chairman promptly if fluctuations in the rate are likely to be inconsistent with the monetary and related reserve paths. The chairman will then decide whether the situation calls for supplementary instructions from the committee.

Discussion of directive specifications naturally follows the appraisal of the economy. Each member's reading of the economy conditions where he or she will want to place the supply schedule for nonborrowed reserves. A strong economy will heighten concern about permitting overly rapid monetary growth. A weak one will strengthen support for a more liberal approach to providing reserves. Of course, participants may disagree on the outlook. Then, those worried about an incipient downturn, or shortfalls in monetary growth, are likely to argue for more rapid short-term growth in the aggregates as the prudent course to follow. At the same time, others, impressed with the economy's performance, the strength of inflationary expectations, or the dollar's weakness in the exchange markets, may opt for slower growth rates in money even at the risk of higher interest rates.

Policy preferences can also reflect different appraisals of how money and the real economy interact, or how long the lags are from desk action to changes in money growth. Some policymakers see a strong influence running from the economy to money demand. Their views of the outlook influence their judgment of what short-term monetary growth rates offer the best bet for achieving the committee's objectives for the year. They will tend to choose lower short-term growth rates for money as a way of leaning against strong economic winds, and higher ones when the economy is becalmed. Other policymakers may emphasize instead that the behavior of money growth in recent months foreshadows future economic activity. If money has been

2. Discussing the Directive

running significantly above or below the annual objective, they are likely to favor an alternative offering a rapid return of the aggregates to path. Both views of the matter may lead to the same alternative. But choices do diverge at times, notably if those leaning to the first approach see a different economic outlook than is suggested by the recent behavior of the money supply.

Policymakers also have differing opinions about the length of the lags between trading desk action and the response of the monetary aggregates. Those who see a strong influence running from the economy to money also tend to expect a lag of some months between the achievement of reserve paths and the desired effect on the money supply. A greater movement in interest rates may be necessary to promote quicker adjustment in bank and public portfolios. But the lag also increases the possibility that money growth will overshoot in the opposite direction. Overly large and rapid declines in interest rates to reverse monetary shortfalls, in this view, run the risk of accelerating growth far more than desired a few months later. On the other hand, other policymakers believe the lags are, or can be made to be, fairly short. They believe that more aggressive movements in the supply schedule for reserves will tend to shorten the lags and bring money back on path in fairly short order — say two or three months. Believing in shorter lags, they see less risk that such actions will produce cycles in monetary growth.

However they read the evidence on lags, committee members weigh the alternatives amid considerable uncertainty about the meaning of the recent behavior of the monetary aggregates. Money supply data are very erratic on a week-to-week basis, even after seasonal adjustment to allow for regular patterns of movement. On a monthly basis, the random element in M1 variations remains equivalent to a change of about 4-1/2 percentage points at an annual rate, according to a Board staff study. In the face of such variability, judgments about which alternative is appropriate can differ among individuals with similar views about the economy and the length of the lags from desk action to money supply behavior.

Not surprisingly, the alternatives presented in the blue book do not usually imply dramatic changes in reserve paths or short-term interest rates. Suppose, for example, that growth in the aggregates proceeded at the pace allowed in the relatively expansive “A” alternative. Adoption of the “C” alternative, involv-

ing a lower growth rate and higher initial level of borrowing at the discount window, might then result in increased borrowing at the window of \$600 to \$800 million over a six- or seven-week period. The resultant pressure in the market for reserves might push up the Federal funds rate by 1 to 2 percentage points. Such a change would certainly work in the direction of reducing the growth of the aggregates, but other forces could delay, or even negate, the return of growth to path. Committee members recognized by early 1981 that the reserve-oriented approach probably calls for discount rate changes and adjustment of the nonborrowed reserve path whenever the FOMC desires to accelerate the return of money supply to path.

In the last analysis, the FOMC has to vote on a precise alternative. With 19 participating, and 12 members voting, an individual policymaker rarely has time to explain fully the analysis behind his choice, much less the concept of the monetary process that has helped form his conclusion. Instead, each speaker tries to argue the case for his own choice in terms that will be most persuasive to his associates. When sharply different views emerge, voting members weigh whether they are prepared to dissent if the majority take a different tack.

3. *The Vote*

In the collegial atmosphere of the committee, the desire for broadly supported decisions is strong. Many believe that unity enhances the Federal Reserve's credibility in financial markets and strengthens its influence in Congress and the councils of the Administration. The voting members themselves tailor their directive specifications to win support for the course they favor. If a move toward the more expansive "A" alternative seems unlikely to pass muster, a member leaning that way might suggest growth rates for the aggregates between the "A" and "B" alternatives of the *blue book*, but with the Federal funds rate range and borrowing levels of "A". A slightly hawkish member, on the other hand, might endorse the "B" alternative's Federal funds rate range and borrowing levels, but the "C" specifications of M1 and M2 growth.

After the participants have spoken, the chairman usually sets forth a set of specifications that give promise of attracting wide support. In subsequent discussion individual voting members may suggest modifications that would enable them to join in support. For example, a member who wishes to guard against a rapid decline in interest rates might accept a lower limit than he

personally prefers for the Federal funds rate range — provided the chairman were to consult the committee before the manager was allowed to use the full range proposed. After discussion, the chairman puts the issue to a vote. An extensive record of the full committee meeting — including the main policy arguments made and decisions reached — is published after the next meeting of the committee.³ Those who dissent record their reasons for doing so.

³The operational instructions of the December 1981 directive were as follows:

“In the short run, the Committee seeks behavior of reserve aggregates consistent with growth of M1 and M2 from November 1981 to March at annual rates of around 4 to 5 percent and 9 to 10 percent respectively.... In setting the M1 target the Committee took account of the relatively rapid growth that had already taken place through the first part of December; it also recognized that interpretation of actual money growth may need to take account of the significance of fluctuations in NOW accounts, which have recently been growing relatively rapidly. The Chairman may call for Committee consultation if it appears to the Manager for Domestic Operations that pursuit of the monetary objectives and related reserve paths during the period before the next meeting is likely to be associated with a federal funds rate persistently outside a range of 10 to 14 percent.”

6

The Trading Desk and Its Tasks

When the manager for domestic operations returns from the FOMC meeting to the New York Reserve Bank, he oversees seven officers and a group of professionals, who are charged with carrying out the directive just adopted. The nerve center of operations is the trading room on the eighth floor. There, skilled traders sit at individual desks, which are clustered in rows before a large board displaying bid quotations for each of the Treasury issues outstanding. Each trader faces a telephone console with direct lines to Federal funds brokers, the money desks of major New York City banks, and primary dealers in Government securities. Other lines connect with the senior officers of the securities and foreign departments.

News tickers provide a stream of reports on financial markets during the day. Cathode ray tubes can be used to display any of several hundred pages of information stored in the computer of a financial information service. In nearby rooms are the accountants who keep the books on the System portfolio, the economists and clerks who produce reports to the FOMC, and the traders who handle operations in bankers' acceptances. Supporting personnel in the research department are nearby on the ninth floor.

The trading desk has many tasks. Its primary mission is to carry out the FOMC's instructions governing both *dynamic* and *defensive* open market operations. But it also provides a regular flow of information to the FOMC and the Treasury about the markets in Treasury and other securities. Its officers counsel the Treasury on debt management and play a leading role in relations with the unregulated dealer market in Government securities. The trading desk also executes a large volume of transactions in Treasury issues, bankers' acceptances, and other instruments as agent for foreign central bank accounts.

Dynamic Operations

The manager for domestic operations and the staff director for monetary policy confer soon after each meeting to develop the desk's objectives for non-borrowed reserves (NBR) in accordance with the procedures described in Box B, page 102. The manager's weekly NBR objectives allow for the seasonal variation expected in M1 and M2 and for the growth expected in CDs and other reservable liabilities not included in these monetary aggregates. The NBR objectives are consistent with the specified level of adjustment borrowing at the Federal Reserve

Banks. In other words, so long as monetary growth is on track, the banks' demand for reserves is expected to result in no change in borrowing or the range in which Federal funds trade.

The manager's conduct of *dynamic* open market operations focuses on hitting the NBR targets established for the intermeeting period, or for separate subperiods. If M1 and M2 deviate significantly from the committee's desires, the demand of depository institutions for total reserves will increase, or decline, relative to the supply of nonborrowed reserves being provided by the desk. Demand and supply, interacting in the market for reserves, will affect short-term adjustment borrowing at the regional Reserve Banks as banks individually seek to meet their reserve requirement, leaving as few excess reserves as possible. Discount officers at the Reserve Banks make clear to the institutions in each district that such credit is available only for short periods to allow an institution time to adjust by reducing assets or increasing its borrowing from others. Hence, changes in borrowing that result from shifts in money growth increase, or reduce, the pressure on banks to adjust, and the Federal funds rate will respond accordingly.

The situation is different if monetary growth proves so weak that the demand for total reserves falls back close to the NBR supply. Then banks in the aggregate will have no need to borrow from the discount window and the Federal funds rate will fall below the Federal Reserve discount rate. Should achieving the NBR objective appear likely to push the funds rate below the bottom end of the committee's range on a sustained basis, the manager reports that to the chairman.

The manager is responsible not only for trying to hit the NBR objective, but also for consulting with the chairman and the staff director for monetary policy whenever monetary growth is veering off course, suggesting the NBR path may need to be modified. In the evolving practice of reserve management, the committee has embraced the desirability of lowering the NBR path on occasion to speed the correction of monetary overshoots. Conversely, raising the path may be in order when M1 and M2 are falling substantially below desired levels. Such interim adjustments accelerate the response of interest rates to monetary deviations. The advantages such path adjustments offer in terms of closer monetary control need to be weighed against

Box B *Formulating
the Reserve Paths*

After the FOMC meeting the Board staff — in consultation with the manager for domestic operations and, if necessary, the chairman — translates the directive adopted by the FOMC into reserve paths. The first step in the process is to allocate the growth sought for M1 and M2 over individual months. There may be at times good reasons for departing from straight line growth at the rates adopted by the FOMC. Suppose, for example, the Treasury expects to collect checks from individual taxpayers more rapidly in April than has been the case in recent years, thus causing a more rapid decline in private demand deposits. The staff might reasonably conclude that the existing seasonal adjustment factors for M1 would not adequately reflect this April's decline in demand deposits. Consequently, in April M1 growth after seasonal adjustment would be weaker than allowed for by existing seasonal adjustment factors. The reserve path might then allow for slower M1 growth in April and somewhat faster growth in May.

Once monthly levels of seasonally adjusted M1 and M2 are determined, the staff deseasonalizes the data and allocates the unadjusted data to the 6 to 8 individual weeks between one meeting and the next. Then, it estimates the required reserves that correspond to the desired growth in money, taking account of the expected behavior of currency, the composition of deposits by type and maturity, the distribution of deposits among institutions with different effective reserve ratios. The staff adds the required reserves needed to support the growth it projects in other reservable bank liabilities — including interbank and Treasury deposits, and large certificates of deposit. This process results in an estimated weekly path of required reserves for the period between meetings, which is believed consistent with the FOMC's directive. By adding an allowance for excess reserves, based on past experience, one produces a path for total reserves (not seasonally adjusted). From this the staff deducts the initial level of discount window borrowing agreed to by the committee to produce a weekly path for nonborrowed reserves.

The period is generally broken for operational purposes into two subperiods. The average NBR objective thus established for each subperiod becomes the desk's primary objective in its conduct of open market operations. Table 2 shows the derivation of an average NBR objective of \$39.4 billion for a sample subperiod.

Table 2

	Actual/Projected Total Reserves	Nonborrowed Reserves Path	Borrowed Reserves Implied by NBR Path
Week 1	40.1	39.1	1.0
2	40.3	39.3	1.0
3	41.8	39.8	1.0
4	40.4	39.4	1.0
Average	40.4	39.4	1.0

Each week the Board staff receives new information on money growth in past weeks and makes new projections of future weeks. The staff then estimates the average level of total reserves that will be demanded over the period on the basis of the actual levels of reserves for past weeks and the projected demand in future weeks. Assume, for example, that one week into the period data become available which indicate stronger monetary growth and a higher level of demand for reserves than originally projected (see Table 3). The demand for total reserves (\$40.7 billion) now exceeds the intended NBR supply (\$39.4 billion) by \$1.3 billion. Therefore the level of borrowing that corresponds to the NBR path must rise to \$1.4 billion in each of the remaining 3 weeks. The individual weekly NBR objectives (Column 2) then are calculated by subtracting \$1.4 billion from the estimated demand for total reserves in each of the three weeks (Column 1).

Table 3

	Actual/Projected Demand for Total Reserves	Nonborrowed Reserves Path	Borrowed Reserves Implied by NBR Path
	(1)	(2)	(3)
Week 1	40.2a	39.2a	1.0a
2	40.9	39.5	1.4
3	41.2	39.8	1.4
4	40.5	39.1	1.4
Average	40.7	39.4	1.3

a = actual

their possible contribution to unnecessary short-run volatility in interest rates.

The strategy of dynamic operations involves reviewing and recasting weekly the NBR objectives. Each week new data on the monetary aggregates and other bank liabilities become available to the Board staff on Thursday. The data reflect preliminary reports on deposits for the week ended on the Wednesday eight days before and the initial estimate of deposits for the week ending the day before. By Friday morning the technicians have recalculated the original reserve paths, based on new information on the actual behavior of currency and excess reserves, and on the distribution of deposits by size, type, and institution. In effect, this constitutes a weekly recalculation of the reserve-deposit relationship for the intermeeting period. On Friday morning, except when holidays intervene, the manager and the staff director review the staff estimates of how much the paths for nonborrowed and total reserves need to be raised, or lowered, to conform to the committee's aggregate objectives. Bearing in mind that these adjustments may change considerably from week to week, they then agree on the extent to which such technical adjustments will be incorporated in the paths.

***Open Market Operations and
the Discount Window***

The discount window, and the discount rate, are central to monetary management, but the decision to borrow rests with individual institutions. Many factors influence that decision. The Federal Reserve's guidelines prescribe the frequency of borrowing permitted. The individual banker will weigh his past use of the window, his perceived reserve position, and his expectations for the Federal funds rate and other rates in the weeks ahead. In consequence, borrowing can turn out considerably higher or lower than desired in a particular week or even several weeks. As the end of a control interval approaches, the desk may find that sharp, but quite temporary, changes in borrowing levels will be needed if the NBR objective is to be achieved. An obvious conflict emerges between achieving the reserve objective and generating interest rate volatility, which may confuse market participants. On balance, the System has tended to accept some deviation from reserve objectives in such circumstances.¹

¹See Fred J. Levin and Paul Meek, "Implementing the New Operating Procedures: The View from the Trading Desk", *Federal Reserve Staff Study – Volume I: New Monetary Control Procedures* (Washington, D.C., February 1981).

The discount rate, it should be noted, plays a more dynamic role in monetary management under a reserve-targeting strategy than it did under the Federal funds rate approach. A rise or fall in the discount rate now typically means a corresponding change in the Federal funds rate, rather than a narrowing of the spread between it and the discount rate. Under reserve targeting, the desk's NBR objectives does not usually change when the discount rate changes. Since aggregate borrowing remains at the same level after an increase, banks bid up the Federal funds rate after a discount rate increase to maintain about the same premium as before. (When the desk operated with a Federal funds rate target, in contrast, it ordinarily supplied NBR after a discount rate increase so that the spread narrowed.)

The Federal Reserve can also use a discount rate change to initiate a move to lower rates. However, it has preferred at times to have open market operations maintain NBR growth in such circumstances until the Federal funds rate falls to the discount rate or below. Reductions in the discount rate, then, merely reduce the rate spread, giving little more than a psychological impetus to further declines in the Federal funds rate.

A key function of any central bank is to enable depository institutions to accommodate the highly variable short-run demands of the economic system for currency, deposits, and credit.² In many countries the discount window performs this function, allowing banks to borrow against, or discount, eligible paper at one or more discount rates to meet the reserve needs generated by customer demands. In the United States, the FOMC underwrites the smooth daily functioning of the financial system by directing the trading desk to provide for seasonal variations in M1 and M2. This policy means that shifts between money and the other short-term assets of the money market tend to take place on reasonably stable terms from week to week.

To conduct defensive open market operations, the manager needs forecasts of the required reserves depository institutions must maintain, as well as estimates of other factors affecting reserves. Under the Monetary Control Act of 1980 each depository institution with checkable deposits must meet its reserve requirements in the current statement week ending on Wednesday. These are based on its daily average deposit liabilities in the

Defensive Operations

²See *Meek and Cox*, op. cit., pp. 50-57.

statement week of two weeks earlier.³ On Thursday, at the beginning of the statement week, the trading desk has before it a set of weekly nonborrowed reserve targets that allows for the seasonal variation in required reserves as seen by the Board's staff. The present week's objective is revised on Friday if required reserves change as a result of reports of the institutions themselves for the statement week ended two weeks before.⁴ By Friday, too, the staff estimate of required reserves included in the second week's NBR objective should be reasonably accurate, since preliminary data for a large share of bank deposits in the week immediately past is already in hand. For the remaining weeks in the control period, the projector derives estimates from the forecast currently being made of the various categories of deposits in the course of developing weekly estimates of M1, M2, and other bank liabilities.

On the Thursday after the FOMC meeting, the officers at the trading desk start with estimated demand for total reserves for that statement week. This estimate allows for the required reserves to be maintained and for a modest amount of excess reserves necessary to lubricate the monetary machinery. From this projected demand the staff subtracts the initial borrowing level agreed to by the FOMC to obtain the tentative NBR objective for the current week. On Friday, this objective and those for subsequent weeks are revised in the light of the latest reports from depository institutions. For example, if required reserves are expected to be \$39.8 billion and excess reserves \$300 million, then the estimated demand for total reserves in the current week would be \$40.1 billion. If the FOMC specified an initial borrowing of \$1 billion, the objective for nonborrowed reserves would be \$39.1 billion (\$40.1 minus \$1.0 billion).

The next step is to compare the NBR objective with the level of nonborrowed reserves being forecast for the current statement week, assuming no further open market operations. If the desired

³At the end of 1981 about 14,300 commercial banks, 450 savings banks, 4,000 savings and loan associations, and 3,500 credit unions were subject to reserve requirements on checkable deposits and non-personal time deposits. Each depository institution has to hold reserves against transaction accounts in a ratio of 3 percent for amounts of \$25 million or less and initially at 12 percent for amounts above \$25 million. Reserves on non-personal time deposits must be held initially at a ratio of 3 percent. Requirements are to be phased in for the institutions newly covered by the MCA over seven years from September 1980.

⁴Reserve maintenance for institutions with a small volume of reservable deposits is based on less frequent reports.

level exceeds the forecast level — by \$1.5 billion, for example — it suggests that the trading desk needs to supply additional reserves in about that volume through open market purchases. Otherwise banks, finding themselves short of reserves in the course of the week, would tend to bid up the Federal funds rate and borrow more at the window than is consistent with the NBR objective. Another way of arriving at the same estimate of necessary open market operations is to express both the desired reserve level and the forecast reserve levels in terms of net free reserves — excess reserves minus adjustment borrowing at the discount window.⁵ In the previous example, desired free reserves equalled a minus \$700 million (\$0.3 minus \$1.0 billion) — usually stated as *net borrowed reserves* of \$700 million. With nonborrowed reserves forecast at \$37.6 billion, forecast net borrowed reserves would be \$2.2 billion — indicating a need to supply \$1.5 billion to achieve the desired level.

The arithmetic is easy enough; it is forecasting the factors affecting nonborrowed reserves, and free reserves, that is difficult. The broad outline of the problem is clear enough (see Chart 18, page 108). From early November to early January demand deposits and hence required reserves rise considerably, only to fall back sharply by early February. Uncontrolled factors affecting reserves alternately supply and drain reserves in November and December, then supply reserves in large quantity in January as currency comes pouring back into the banks after the holiday season. As a result, if the Federal Reserve sought to enable the banking system to meet the seasonal demand for currency and deposits, open market operations would be called on to supply about \$2 billion of reserves through early January, and then to turn around to absorb \$4 billion in the following month.

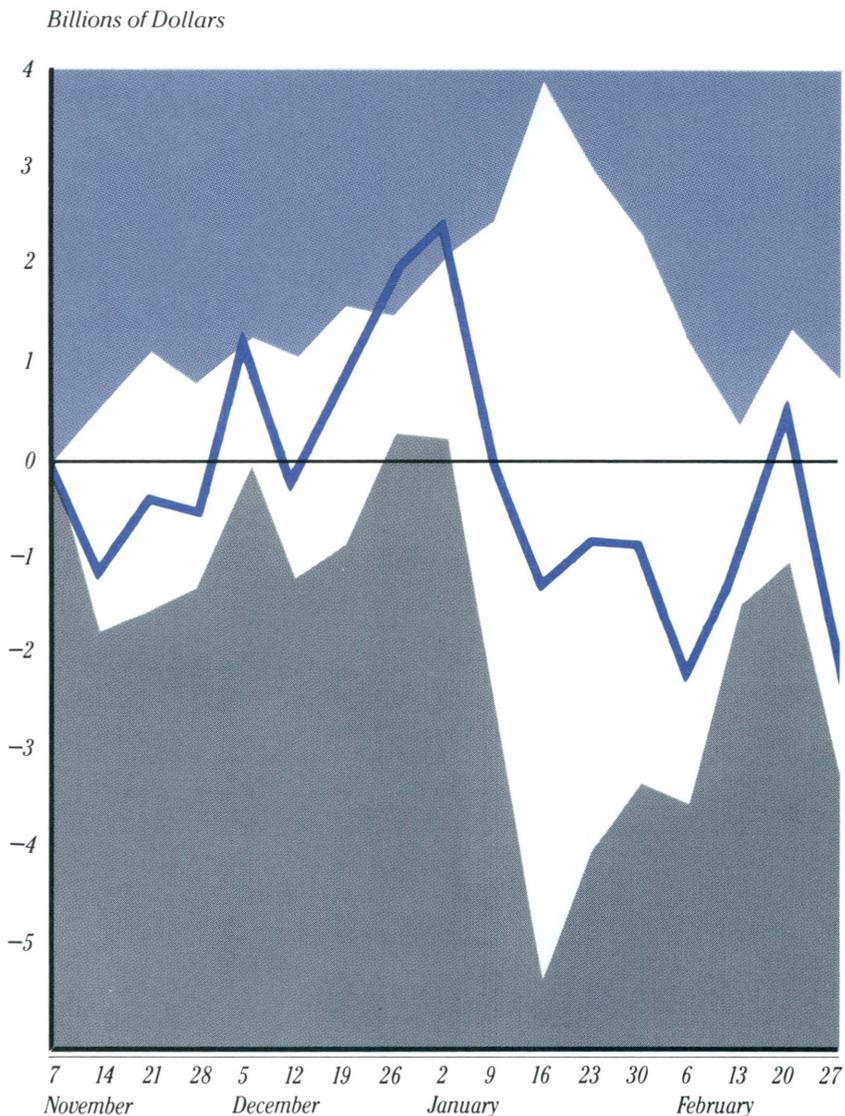
The problem in actual operations is that the weekly data are very volatile, however regular the main seasonal patterns may be. Federal Reserve float, which arises mainly in the check collection process, is notoriously erratic. Float is Federal Reserve credit that stems from automatically crediting member banks for checks they deposit on a time schedule somewhat shorter, on average, than the time needed to collect the checks. In other words, the *amount due from depository institutions* on Federal

⁵*Free reserves* = (total reserves – required reserves) – adjustment borrowing = nonborrowed reserves – required reserves.

**Chart 18 Market Factors vs
Required Reserves**

Required Reserves
 Market Factors
 Total

Above the line: Cumulative Net Drain
 Below the line: Cumulative Net Supply



Reserve Bank balance sheets always exceeds the *amount due depository institutions* for one- or two-day items not yet credited to them. Float generally rises toward the middle of most months with the volume of checks being processed, but periodic processing problems and the vagaries of the weather and transpor-

tation make it highly variable. Wire transfer and accounting errors also result in "as of" adjustments to bank positions that count in assessing their compliance with reserve requirements. By comparison, the flow of currency out of institutions into circulation, and the reverse flow to them, is predictable with reasonably small errors.

Nonborrowed reserves also change because of the behavior of the Treasury's balances at the Reserve Banks. The Treasury seeks to maintain these balances at a relatively stable level. It transfers funds to the Reserve Banks from its "tax and loan" balances with depository institutions at a rate that about offsets the dollar volume of checks expected to be presented at the Reserve Bank's. But an error of \$500 million in the volume of Treasury checks clearing on any one day is common and misses of \$1 billion are not unknown. Changes in the Federal Reserve balances held by foreign central banks and the Federally sponsored agencies also affect bank reserves unexpectedly at times. In all, the estimates of nonborrowed reserves prepared on the first day of the statement week exhibit errors that average \$500 million or more, with float the major source.

Given the magnitude of these errors, the manager and his associates use the reserve estimates as broad indicators of probable reserve availability, rather than as precise guides to action. To some extent, they look to the Federal funds market itself for indications that reserves are in short supply, or overly abundant. Traders on the desk monitor closely the bid and offer quotations, which are reported by the Federal funds brokers and the money desks of major banks. In a week when the estimates suggest a need to add \$1.5 billion on average to reserves, the Federal funds market should exhibit a degree of upward pressure on the rate. When such confirmation is not forthcoming, the manager may decide to supply only \$1 billion or less in the daily routine that will be described in the next chapter. Defensive operations involve a daily comparison between the reserve estimates and the Federal funds rate in the interest of achieving the FOMC's nonborrowed reserve objectives.

The manager and his associates have a number of other duties, which have a life of their own. Desk officers are in daily contact with senior Treasury officials concerned with cash and debt management. They also maintain contact with the primary dealers in Government securities, playing an active role in official

Adjunct Desk Responsibilities

surveillance of that market. The desk makes investments on a very large scale as agent for foreign central banks, which operate through the Bank's foreign relations department. Finally, officers and staff contribute studies relating to monetary policy and other financial developments.

The trading desk's relations with the Treasury have many facets. The traders on the desk provide information several times each day on supply and demand in the secondary market for government securities — both through oral reports and market quotations. Desk personnel also pass along market ideas of what investors would like the Treasury to offer in its financings. Once the actual offerings have been announced, they report on the extent of investor interest. Desk officers monitor the market's bidding ideas in each auction of Treasury issues. They also supervise the opening of tenders for the Second Federal Reserve District, which usually accounts for one-half to three-quarters of the national awards of new issues. Any problems associated with the auctions or the market are quickly brought to the Treasury's attention.

The desk's advisory role stems naturally from its daily involvement in the U.S. Government securities market. The manager is in frequent contact with the deputy assistant secretary of the Treasury for debt management and the fiscal assistant secretary concerning the Treasury's cash needs and its plans for meeting them. The manager and his associates regularly inform the Treasury about foreign official interest in special Treasury issues or in regular offerings of marketable securities. Once each quarter Treasury officials come to New York to obtain the views of the primary dealers on how they should structure the mid-quarter financing and what approach seems best for meeting remaining cash needs in the months ahead. In the following week the manager and an associate typically attend the briefing sessions the Treasury holds in Washington. There the Treasury obtains financing recommendations from special advisory committees of the American Bankers Association and the Public Securities Association, on which leading bankers and the Government securities dealers, respectively, are represented. The trading desk team participates in the Treasury's internal discussions, when the under secretary for monetary affairs decides on the amount and maturity of securities to recommend to the secretary for sale.

The manager and his team have a special responsibility for relations with the primary dealers by virtue of the desk's multiple

market roles. The manager must decide which firms will report daily to the Federal Reserve Bank of New York on their activities, and which firms will trade with the desk. Bank dealer departments or nonbank firms are usually added to the reporting list when they have satisfactorily demonstrated the adequacy of their capital, the experience of their management and trading personnel, and the achievement of a significant volume of trading activity in Government and Federal agency securities with customers and other dealers.

The manager admits a dealer to a trading relationship after determining that this would help the desk perform its own functions. Such a decision follows an on-the-spot review of the firm's policies, management controls, and reporting procedures. The dealers report daily on their trading activities, their cash and futures positions in Treasury and other securities, and their means of financing positions. Such reports provide desk officers with up-to-date information on the functioning of each dealer and the market as a whole. In addition, they receive monthly and annual profit reports, which enable them to keep close watch on the financial soundness of the dealers. Periodic visits from a Federal Reserve team help to strengthen their understanding of a dealer's business approach, review management controls, and test adherence to reporting procedures. Once a year, the manager and his associates formally discuss with the principal officers of each dealer their views of the dealer's recent performance and review any outstanding issues.

Given the institutional character of the market and the Treasury's own role, the trading desk is an active participant in the joint Treasury-Federal Reserve oversight of the dealer market. Trading in U.S. Government securities, as well as the issues of the government-sponsored agencies, was left exempt from regulation by the Securities and Exchange Commission in the 1930s. A three-member Treasury-Federal Reserve steering committee, on which the manager is represented, seeks to maintain general oversight of the dealer market. The aim is to foster continuing high standards of business conduct and responsible performance of the market-making function. Both are essential to the Treasury's orderly sale of new debt and the trading desk's efficient conduct of open market operations. The steering group has been instrumental in revising dealer reporting forms to keep them abreast of changes in the market. Its members constitute an informal clearinghouse for information about market practices

and problems. The staffs of the Treasury and Federal Reserve, including desk representatives, maintain a close watch on the interrelationships developing between the cash and futures markets for Treasury issues.

On another front, a considerable part of the trading desk's time and resources is taken up with executing orders for foreign central bank accounts. At the end of 1981 foreign and international holdings of Treasury and other securities at the New York Bank amounted to over \$130 billion. A substantial part of the international dollar flows affecting foreign central bank reserves results in transactions executed through the trading desk. The desk takes account of such transactions in planning daily System open market operations with a view to cushioning their impact on domestic securities markets when that seems appropriate. The execution service provided to foreign accounts leads to outright transactions that are several times as large in dollar volume as those undertaken for the System's own account. Most of the outright activity is in Treasury bills, but the desk also carries out customer orders, as requested, in the markets for bankers' acceptances, Treasury coupon securities, securities of the Federally sponsored agencies, and negotiable CDs. Overnight funds of foreign accounts are invested daily in a special pool of repurchase agreements involving Government and Federal agency securities.

Finally, trading desk personnel engage in a wide variety of reporting and analytical assignments. Reporting to the FOMC itself is a major task. Each statement week there is a comprehensive report on System open market operations, bank reserves, and the markets for Government securities, corporate and municipal bonds, and bankers' acceptances. Before each FOMC meeting a special report reviews the intermeeting period in more summary fashion. Annually the manager reports on the full sweep of the year's events, together with his comments on the strategy and tactics of open market policy. Beyond these, there are special studies involving proposed modification in the Committee's approach to reserve management or to the pursuit of the monetary aggregates. Technical matters involving Treasury financing, the Treasury's tax and loan accounts and the record of dealer performance are also addressed. New market developments, like the futures market for Treasury securities, are of particular interest.

7

The Conduct Of Open Market Operations

The FOMC's adoption of a reserve-oriented approach to monetary management changed significantly the framework within which the desk carries out the Committee's directive. Before the 1979 decision, desk operations — their timing and magnitude — provided clear signals to financial market participants of the Federal funds rates at which the desk was prepared to provide, or absorb, reserves. The levels of nonborrowed reserves and discount window borrowing that emerged reflected the banking system's demand for reserves, and the relation between the Federal funds rate and the discount rate. Since October 1979, in contrast, the desk has concentrated on achieving a nonborrowed reserve path, which is consistent with desired monetary growth. Discount window borrowing and the Federal funds rate then emerge as the banking system's demand for reserves impinges on the nonborrowed reserves supplied by the central bank.

The process is an interactive one. The desk has a nonborrowed reserve objective each week, and adds to, or subtracts from, the volume of nonborrowed reserves expected to result from developments beyond its control. But the banks have no clear fix on the desk's reserve objectives or what they imply about pressure on bank reserve positions. Individually, the banks have reasonable information about their own present and prospective reserve positions. They also have some sense of the current Federal funds rate, and expectations about the outlook for short-term borrowing rates in the current week and beyond. Not surprisingly, banks collectively may borrow at the Federal Reserve discount window considerably more, or less, in any one week than is consistent with the desk's nonborrowed reserve objective. They may then discover on Wednesday, the end of the statement week, that banks as a group have overborrowed, leaving them with surplus reserves, which have to be sold at sharply declining Federal funds rates. Or the banks may find themselves on Wednesday short of meeting their reserve requirements, forcing them to bid up the Federal funds rate and borrow heavily at the discount window. Moreover, extremes of tightness or ease on a Wednesday often tend to carry over to the following week.

Against this background the trading desk considers bank behavior as it tries to keep reserve conditions in line with System objectives. It tries to cope with large swings in reserves in a manner that is readily understood by the banks and others, who are trying to duplicate the Federal Reserve's projections of fac-

tors affecting reserves. Each day the desk weighs both the action indicated by the day's reserve projections and the wide margins of error that it knows such estimates involve. The desk must judge whether the market for reserves primarily reflects underlying reserve availability or the action of banks in building sizable surpluses or deficiencies in the early part of the statement week. The main concern is to maintain a degree of reserve pressure on banks consistent with the nonborrowed reserve objective for the period or subperiod.

The trading desk uses the System's portfolio to achieve its reserve objectives. The FOMC spells out the manager's authority in a special directive, which is reviewed annually but may be amended as necessary. It authorizes outright transactions at market prices in Treasury and Federal agency securities with Government securities dealers or with foreign and international accounts at the Federal Reserve Bank of New York.¹ The FOMC also authorizes the desk to make repurchase agreements involving those securities, and bankers' acceptances, for periods of up to 15 days for the New York Reserve Bank's account. The desk is allowed to interpose the Reserve Bank as intermediary when concluding repurchase agreements in the market on behalf of foreign and international accounts. Finally, the FOMC imposes a limit on the aggregate change permitted in the System's portfolio in the interval between meetings — \$4 billion at the end of 1981. The manager seeks an increase in this portfolio leeway whenever circumstances suggest that may be needed to deal with the scale of reserve changes expected for the intermeeting period.

Within the FOMC's basic authorization and operational directive, the manager and his associates have substantial flexibility in carrying out Committee instructions. To convey a steadiness of purpose, their tactics take account of the expected outlook for bank reserves. Are the banks expected to be short of reserves for a period of several weeks? Or is a reserve need only temporary — perhaps because the monthly rise in float will soon be adding

*The Strategy of Reserve
Management*

¹The Federal Reserve operated on its own account in the market for bankers' acceptances until 1977 when the FOMC concluded that market was sufficiently developed that Federal Reserve participation was no longer appropriate policy. The authorization to buy acceptances under repurchase agreements was retained because such operations remain useful in managing reserves.

to Federal Reserve credit? In the first case, an outright purchase of Treasury issues may be in order. In the second, the desk might choose to buy securities under repurchase agreements that expire a week later. Intermeeting tactics also may be conditioned by the prospective timing and scale of Treasury financing operations, the foreign exchange markets, changes in holdings of foreign official accounts at the Bank, and at times, the state of the financial markets.

The manager's daily decisions involve a conscious, subtly changing blend of the dynamic and the defensive. His task is to generate the pressure on bank reserve positions that accords with the weekly nonborrowed reserve targets, despite his own uncertainty about how bank reserves are behaving. In 1981, less than \$50 million a week had to be added to member bank reserves to achieve a 6 percent annual rate of growth. But the average error in forecasting reserves at the beginning of the statement week was about ten times as large. The size of the forecast error gives zest to the game. Each day the manager must decide whether to buy or sell outright, or to do so with a string attached so that the impact on reserves is reversed a few days later. Daily decisions seek to weave a pattern, which is consistent with the intermeeting objectives for nonborrowed reserves.

1. *Outright Operations*

In buying and selling securities, the manager functions within an established framework of Federal Reserve-Treasury relations, one designed to keep monetary policy and debt management separate. In 1981 the Federal Reserve lost its legal authority to buy up to \$5 billion of securities directly from the Treasury after authorization by five members of the Board of Governors. The 1951 Accord between the Treasury and Federal Reserve freed the monetary authorities from supporting the prices of Treasury securities in the secondary market. It obligated the Treasury to design and price its issues to attract private investors and underwriters.

For many years thereafter, the Federal Reserve avoided monetary policy changes just before, and after, major Treasury financings to enable the Treasury to price issues fairly and the private market to distribute them to investors. However, in the 1970s the Federal Reserve could no longer maintain such "even keel" conditions if monetary policy were to pursue its own objectives. The Treasury increased the frequency of its offerings to reduce each to a manageable size, and also adopted competitive bidding for

nearly all offerings of notes and bonds. Market participants could then allow for the future course of monetary policy in the prices they bid, up to the moment of sale. The Treasury continued to be able to place its debt efficiently without holding monetary policy hostage.

The Federal Reserve acquires all of its holdings of Government and Federal agency securities in the secondary market. The FOMC does not permit the manager to subscribe for new Treasury issues that are sold for cash. Nor in a refunding can he subscribe for a larger amount of the issues offered than the System holds of the maturing securities. The trading desk is allowed, however, to reduce the System's portfolio by redeeming a part of maturing holdings — bidding at a lower price than the Treasury is likely to accept. The desk often uses this technique in Monday's weekly Treasury bill auctions as a means of absorbing reserves in the next statement week, which begins on the Thursday the bills are paid for and delivered. It also may choose to run off a part of maturing Federal agency issues, either for reserve management or to promote better portfolio balance.

In the secondary market, the manager's key choices involve when to buy or sell outright, when to operate in securities other than Treasury bills, and whether transactions will be in the market or with foreign accounts. The timing of outright activity depends principally, but not exclusively, on the outlook for bank reserves. When the reserve forecasts show a large reserve need stretching several weeks ahead, the manager may buy a sizable volume of Treasury or Federal agency securities in the market. In selecting the actual day, however, market conditions come into play. Trading desk officers prefer to buy when available supplies are sufficient to accommodate a large purchase without much impact on prices. They try to avoid buying in rapidly rising, or falling, markets, not wishing either to add to market volatility or to forestall price adjustments. Market participants must evaluate monetary policy for themselves. Desk officers try not to increase the price risks private market participants must bear, nor to insulate participants from such risks.

There are occasions when the manager does use outright market activity to underscore the thrust of policy. For example, if monetary growth is excessive, the desk may sell a sizable volume of Treasury bills in the market to make it clear that interest rates are going to experience upward pressure. Conversely, when demand for reserves is falling relative to the nonborrowed reserve

path, outright purchases of Treasury coupon issues, used sparingly, may help generate quicker market responses to subpar monetary growth.

Most System outright activity is in Treasury bills, reflecting the depth of that market and the consequent ease with which operations can affect bank reserves. At times, the desk can purchase \$1 billion or more of bills with little impact on bill rates. Dealers are normally somewhat better sellers than buyers in view of their own inventories, but on many occasions desk sales of \$600 million to \$700 million of bills would cause hardly a ripple. In more troubled times, transactions half as large could affect rates significantly.

Trading desk officers usually have a reasonable idea of supply-demand conditions in advance through market contracts and daily operations in Treasury bills for foreign accounts. The scale of activity can be adjusted once the array of dealer offers, or bids, is before the officers. All purchases or sales are made on a best yield basis in relation to the prevailing yield curve. At the margin the System tends to buy issues that are in excess market supply, or supply to the market those that are particularly scarce.

The desk uses market purchases of Treasury coupon securities and Federal agency issues to supply a share of the growth of the reserves needed for monetary expansion in a growing economy. It buys such issues when a sustained reserve need is projected and market availability is great enough to limit the price effects of buying. Sometimes when the economy is weakening and interest rates are falling, FOMC members will suggest purchases of intermediate- and longer-term Treasury issues to encourage interest rates to move lower in the capital markets. But no one believes that this affects long-term rates more than marginally beyond the impetus provided by maintaining the desired growth of nonborrowed reserves. The desk has not in practice sold Treasury coupon issues from its portfolio in the market, although it is theoretically possible to do so.

As an occasional buyer of notes and bonds, the Federal Reserve contributes to the orderly marketing of the Treasury's coupon issues. Dealers and other underwriters of Treasury issues, to be sure, have no guarantee as to when the Federal Reserve may come in to buy; nor can dealers be sure that their occasional sales to the Federal Reserve will be profitable. But the desk's role as a buyer offers encouragement occasionally to underwriters, and investors too, to acquire

notes and bonds in Treasury auctions.

The scale of System buying depends on the availability of issues in the market — either in dealers' hands, or readily available from the trading and investment accounts of financial institutes. Generally, the desk buys somewhat less of Treasury notes and bonds than it would of Treasury bills, to reduce the impact on market prices. Purchases of \$750 million to \$1 billion would not be uncommon; the ready availability of coupon issues in all maturity sectors expanded with the growth of the marketable debt in the 1970's. The desk can also buy \$500 million to \$700 million of Federally sponsored agency securities routinely because of the growth of that market. On occasion, the desk sells agency issues at the shorter end of the maturity spectrum in the course of managing bank reserves.

When buying Treasury coupon issues, the desk purchases those issues whose yields are on, or above, the yield curve represented by offerings throughout the spectrum. Purchases reflect market availability and a desire for maturity balance, rather than any desk view of the interest rate outlook. Federally sponsored agency issues are available at a yield spread over Treasury issues. The market is continually evaluating the credit risk of each issuer and the desk buys at the yield spreads prevailing in the market. Otherwise, its portfolio would become top heavy with the securities of a single issuer. The issues of the Federal National Mortgage Association, a private corporation, sell at a somewhat higher yield than those of the other agencies — in part, because they are not exempt from state and local income taxes.

In addition to transactions in the market, the trading desk has the option daily of buying Treasury bills from foreign official accounts, if they are selling. Or it may sell issues from its own portfolio to meet the buy orders of such accounts. Transactions with foreign accounts are put through at the middle of the latest bid and asked prices in the market.

The option to deal with these accounts enables the desk to add, or withdraw, reserves to the extent of their orders without any of the announcement effects that accompany a market entry for the System Account. The desk may be on the buy side rather consistently, if foreign orders permit, when there is a need to supply reserves, and on the sell side when reserves are overly abundant. Often, the desk buys the net of foreign gross sales and purchases, after transactions have been crossed between different foreign accounts. But on occasion, the desk will buy all the

bills sold by accounts, executing the gross purchases of other accounts in the market. Similarly, desk sales to foreign accounts may meet either the net or gross volume of their buy orders.

The desk's role as agent for foreign accounts helps it cushion the shocks to the U.S. money market stemming from international money flows. The desk can shift its reserve supplying effort toward bills when foreign accounts are large sellers on a sustained basis, or away from bills when the accounts are heavy buyers. The Federal Reserve and Treasury have likewise worked together when foreign demand is very large, enabling foreign accounts to buy market-based special securities issued by the Treasury. Such actions do not insulate the money and Treasury securities markets in the longer run from the effects of international flows. But they do help maintain the orderly functioning of those markets, which are inextricably linked to the international reserve currency status of the dollar.

2. RPs and MSPs

In managing bank reserves, the manager needs to be able to put reserves in, or take them out, in large volume for a few days at a time. Suppose the forecast suggests nonborrowed reserves are in short supply for the remainder of the current statement week, but are about as desired for the next week. One possibility would be to buy Treasury bills outright now and then sell bills from the portfolio a few days later. But such a course would expose dealers to an unnecessary market risk and whipsaw the Treasury bill market. There would be downward pressure on bill rates in the first instance, and then upward pressure later, when dealers had to bid on the bills being resold. How much better to buy the bills under repurchase agreements (RPs), which obligate dealers to buy them back on the desired date. The RP approach injects reserves temporarily, without affecting the interest rate risks market participants have to bear; it provides financing of existing dealer positions for a few days, rather than requiring a change in positions.

When the manager wants to absorb reserves for several days, matched sale-purchase transactions (MSPs) with dealers provide a natural response. He sells Treasury bills from the System's Account for immediate delivery and simultaneously buys them back for delivery on the date desired. This procedure provides securities to be financed for a few days, rather than adding to dealer positions at risk.

The desk relies heavily on RPs and MSPs in dealing with the

uncertainties that affect bank reserves. Even when the reserve forecasts on Thursday indicate no need for System action, reserves for the week may actually turn out \$500 million or so higher — or lower — than projected. RPs or MSPs enable the desk to respond quickly when reserves fall short of desired levels or prove excessive. For example, suppose, on the opening day of the statement week, the manager concluded that reserves were probably in short supply because of the Federal funds rate was rising sharply, even though there was little projected need to add reserves. The desk could then do a large volume of overnight RPs without much risk of making reserves overly abundant for the week as a whole. Overnight RPs would add to the daily average reserve level only one-seventh of the dollars paid out through RPs. By using RPs, or MSPs when reserves are in surplus, the desk can defend against unexpected swings in nonborrowed reserves, which lead away from the week's objective.

When it makes RPs, the desk notifies each of the bank and nonbank dealers that it wants to do RPs involving eligible collateral of both dealers and their customers for a specified period of up to 15 days.² For System RPs the acceptance division will make a similar go-around of the acceptance dealers. Within thirty minutes, dealers will begin to call in offerings of the amount that they and their customers want to do, and the interest rate they are willing to pay on each lot. Typically, traders on the desk will have to round up the stragglers to complete the array of competitive bids for funds. The principal traders consolidate the offering amounts by rate, and inform the manager. While the manager will usually have in mind the total he wants to do, he may do somewhat more if large offerings, or a stringent Federal funds market, suggest a larger-than-expected need for reserves. Once the decision is made as to how low a rate to accept, traders on the desk quickly notify all dealers of the propositions accepted and rejected. In a flurry of market calls, participants then compare notes to see what the “stop out” rate was.

Later, each dealer notifies the traders on the desk of the specific securities that dealers or customers are selling to the Federal Reserve under RP. When notified, the desk's trader will value each security at a price set somewhat below the current bid price

²Obligations eligible for purchase under RP are U.S. government securities; obligations that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States; and prime bankers' acceptances.

being quoted in the market, affording protection against declines in market price during the term of the contract. The task of pricing securities continues into the early afternoon. The accounting section prepares tickets, which authorize the government bond department to pay specific amounts as it takes delivery of the separate blocks of securities. Because of the length of the process and the possibility of early dealer withdrawals, which further complicate the accounting, RPs are made for the account of the Federal Reserve Bank of New York rather than the System Open Market Account. The System Account must be divided each business day among the twelve Federal Reserve Banks. RPs are subject to the terms of a comprehensive collateral agreement, which affirms the right of the Reserve Bank to sell the securities in the event the dealer fails to repurchase them.

In form, MSPs are a different kind of animal, even though they are just the reverse of an RP in their effect on reserves. The sale side of a matched sale-purchase transaction is an outright sale of a specific Treasury bill from the System's portfolio. The purchase side is a contract to buy that bill for delivery at a particular future date. In making MSPs, System traders notify dealers of the market rate at which the desk will sell the particular bill. Dealers then submit the amount they are willing to buy and the rate at which they will reoffer. The manager may raise or lower the amount he has in mind if the bidding seems to indicate a bigger, or smaller, volume of the reserves in the banking system than he expected. The rate of discount set by the desk determines the price realized by the System on its sale while the competitively set reoffering rate determines the prices at which it reacquires the same issue of bills one or more days later. Such sales also result in a System profit or loss recorded in relation to book value.

Both the desk and the dealer retain the option to terminate the usual RP contract before maturity. In practice, the desk does not exercise the option. Dealers often do, repurchasing their securities when they make cash sales or refinance them at a lower RP rate than was established on the Federal Reserve contract. The right of withdrawal on contracts maturing beyond one day, means that the desk is uncertain at the time it makes RPs what the effect will be on average reserve levels for the week. This can be an advantage. If nonborrowed reserves turn out too high, dealers are apt to repurchase their securities early and absorb reserves in the process.

The withdrawal feature also can lead to difficulty in maintaining desired reserve levels — for example, when a strong demand for securities, rather than an abundance of reserves, causes the decline in RPs. When the desk wants to be sure that its reserve injection sticks, it offers nonwithdrawable RPs — most commonly for a week. MSPs, for their part, are not subject to withdrawal since they are literally matched outright transactions with specified delivery dates.

The desk integrates its RP and MSP operations with the temporary investment activity of foreign accounts to achieve reserve objectives and to reduce the number of market entries. Many foreign official and international accounts maintain a portion of their dollar holdings in a daily investment facility provided by the Federal Reserve Bank of New York. Each daily forecast of nonborrowed reserves assumes that the System will sell securities from its own portfolio at market rates to this RP pool, under a contract to buy them back the next day (MSPs). The manager also has the option of investing part, or all, of these pooled funds by making customer-related RPs in the market. Both a pass-through of customer orders and RPs made for the System Account supply reserves to the banking system and increase nonborrowed reserves relative to the levels shown in daily projections.

The choice depends largely on the magnitude of RPs that the desk wants to make. When the reserve need is less than about \$1.5 billion and RP collateral is readily available in the market, the manager usually will pass through foreign account orders. When the reserve need is larger, or there is likely to be a problem in rounding up sufficient securities to be bought under RP, the manager is likely to make System RPs in the market in the first instance and to make MSPs with the foreign account pool as assumed in the projections. With System RPs, bankers' acceptances become available as eligible collateral.

In varying the mix between outright and RP transactions, the manager and his associates take account of the availability of eligible securities, and bankers' acceptances in the hands of dealers, banks and other market-oriented investors. At times, it is possible to do \$5 billion or \$6 billion of overnight RPs at rates only 25 basis points below the rate at which Federal funds are trading. At other times, to do \$1 billion of such RPs may be difficult because of a scarcity of such collateral.

To some extent, the availability of securities being financed day-to-day is a function of the interest-rate outlook of dealers

and others making an interest-rate play. When market players are optimistic that interest rates will soon decline, they tend to add substantially to positions. Accessible collateral becomes plentiful and the RP rate rises toward the Federal funds rate. When gloom settles over the fraternity, positions are cut back sharply and the RP rate may fall 100 basis points or more below the Federal funds rate. Other investors, especially money market funds, also tend to move large amounts of funds between RPs and other short-term instruments as their own interest rate expectations change.

The View from the Desk

The working day at the trading desk has a regular rhythm, which flows naturally from the task at hand. Activity radiates from the trading room itself, a busy room on the eighth floor of the Federal Reserve Bank of New York. The officers begin the day at 9 a.m. with a series of meetings with Government securities dealers. Traders at the desk are simultaneously preparing for a day of gathering information from the market.³ At the same time research personnel are pulling together the previous day's data on reserves and bank activity. A little after 10 a.m. the manager learns how total and nonborrowed reserves turned out the previous day and what the revised reserve outlook will be for the current week. The manager, or an associate, discusses with the fiscal assistant secretary of the Treasury how the Treasury plans to manage its balance in the days ahead. Before 11 a.m. the manager and his associates review developments in the money and securities markets, assess the new forecast of bank reserves, and formulate a program of action for the day.

About 11:15 a.m. a telephone conference call begins, in which a desk officer reviews the situation and outlines the day's program for one of the Reserve Bank presidents serving on the FOMC, and the senior staff of the Board of Governors. Any action to affect reserves that day is usually undertaken soon after the call. Purchases or sales for next day delivery may be undertaken later in the day. The accounting section sees that the books reflect whatever is done, while deliveries and payments are carried out by the Government bond department. By 1:30 p.m. or slightly later, the possibility is past for action to affect reserves the same day.

³Traders in the dealer market are those authorized to deal, or take positions, for the firm whereas Federal Reserve traders have the more circumscribed responsibility of carrying out transactions authorized by officers in charge of the desk.

Traders and clerks struggle with the paperwork needed to complete the day's activity. The traders maintain their watch on the financial markets, while the officers turn to other tasks.

1. *Daily Dealer Meetings*

A few minutes before 9 a.m., two or three officers of the securities department walk up the back stairs from the eighth floor of the Bank to a room on the tenth floor. At the same time, a senior officer or trader of one of the Government securities dealers with which the desk trades, and one or two colleagues are making their way down Liberty Street. The Bank, with its Florentine facade of massive stone blocks, contrasts sharply with the sleek 60-story steel and glass structure of the Chase Manhattan Bank across the street. The dealers pass under the massive wrought iron candelabra that flank the bank's entrance, enter the high ceilinged lobby, and proceed to the special elevator that whisks them to the tenth floor. Entering the subdued elegance of the executive floor, they join the Reserve Bank officers around the rectangular table of the room, in which weekly press briefings are held for business reporters each Friday afternoon.

These morning discussions with leading members of the dealer community help the manager and desk officers keep abreast of the forces at work in financial markets. Representatives of each of the dealers operating from a New York base made the trip to Liberty Street once every two weeks on a prearranged schedule; out-of-town dealers phone in on a schedule of their own. Each weekday morning representatives of two or three dealers typically arrive in succession for a chat with desk officers.

These morning conversations are free flowing, covering a wide range of subjects in 15-minute installments. To the outsider they are full of market jargon, shorthand references to the prices, practices and pressures that are an everyday concern. To insiders they are an efficient way of exchanging information, albeit the desk officers must remain silent on the policy issues of greatest interest to the dealers. Daily meetings face-to-face emphasize it is real people who make markets. However sensitive they are to the subtlest changes in financial flows, they are individuals first and foremost — quiet or articulate, cool or emotional, analytical or with the sixth sense of a born trader. At times they will be caught up in the collective enthusiasms or fears that make bull or bear markets. The fraternity is not large — a few hundred at most. Desk officers have to know

the major players and their personal chemistry to interpret properly the comments that flow across the table.

A dealer representative may open the meeting by giving the firm's operating assumptions about what Federal funds rate levels are consistent with the desk's current reserve objectives. The dealer usually elaborates on how rates are expected to change in coming weeks. The firm's money market economist often comes along to outline the economic analysis and interest rate outlook the firm is presenting to clients. Desk officers are studiously noncommittal as dealers outline alternative scenarios or their own conclusions. But they do try to get each visitor to assess the general market view on the outlook for interest rates.

Dealer comments on what their customers are actually doing in the market are helpful. Are customers sitting on the sidelines or clearly favoring short-term securities? Or are they reaching out to intermediate- or longer-term issues? Dealers may touch as well on whether their firm has an aggressive short position in the expectation rates will soon move sharply higher, is close to shore in a choppy market, or is placing a sizable bet on a near-term fall in interest rates. The visitors will often give their own estimate of the technical position of the Street. Are dealers in the aggregate short or long? Do shortages in particular maturity areas, or excess supplies, explain the way the market has been behaving in recent days? For the desk officers, the succession of meetings each day, day after day, keeps them in touch with the changing analyses, moods, and concerns of the market makers themselves.

Treasury financings provide a recurring theme for the dealer meetings. The manager and his associates may inquire about how much the market expects the Treasury to sell of marketable issues in the current or following quarter. They get running reports on how the distribution of recently sold issues are progressing, as well as on customer interest in coming offerings. To dealers, bidding in Treasury auctions of bills and coupon issues is just an extension of the daily task of making markets in outstanding issues. They readily provide desk officers with their estimates of what concessions to the yield curve will be necessary to sell new securities. Dealer opinions on the weekly auction are apt to be similar, but approaches to the Treasury's quarterly coupon offerings often differ. From these conversations and other market contacts, desk officers can keep Treasury officials posted on the apparent public appetite for new securities and the amounts and maturities

the market expects for nonroutine financings.

Desk officers use these sessions to keep up with developments throughout the financial system. Each dealer brings to the discussion the special strengths of the firm. Both bank and nonbank dealers trade with major national and regional banks.

They comment on bank trading activity and on the strength of business loan demand, current and prospective issuance of CDs, whether current rate relationships favor recourse to CDs or Eurodollars, and developments in the foreign exchange markets. Dealers keep the desk informed of what they see foreign central banks doing directly in the market. Others, especially tuned in to savings banks and savings and loan associations, alert desk officers to the mortgage demands, and the liquidity and earning pressures, such institutions are experiencing. A number of dealers can answer questions about activity in commercial paper and bankers' acceptances from their own experience. Desk officers also keep up with prospective corporate and municipal bond flotations by quizzing the dealers with large investment banking operations.

The morning sessions enable a dealer to bring up matters of particular interest to the firm. Senior management may use the occasion to report its plans for redirecting its manpower or entering new lines of activity. Personnel changes in the firm, or the industry, often come up, and new senior personnel may be introduced at a morning session. Dealers raise questions about the desk's procedures or operational problems they may be having with the Federal Reserve's wire transfer network. Desk officers, for their part, may bring up the need for a particular dealer to be more attentive to bidding when the desk or the Treasury is selling securities. They also may ask about a dealer's position, recent profit experience, or the present state of industry plans for self-regulation.

After concluding the dealer meetings at 10 a.m. or a bit before, the officers hurry back to the trading room on the eighth floor. There the traders have already been making calls in both the Federal funds market and the Treasury market. Typically, Federal funds brokers will have opened trading for the day and will be quoting bids and offers to the customer they are bringing together. Desk traders will have clipped important news developments from the three news tickers. They also will be checking the information screens for the opening quotes on the most

2. The Treasury Call

A Day at the Trading Desk

9:00^{A.M.}

Discussing the market with dealers.



10:00

*Reviewing market developments in
the trading room.*



10:15

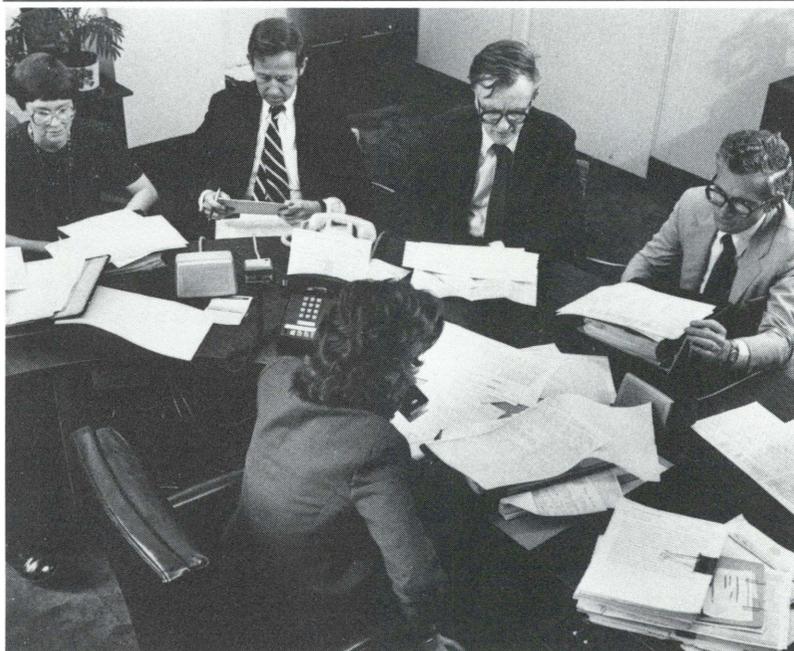
*Consulting the Treasury by phone
about its balances at the Reserve Banks.*



10:45

Developing a plan of action for the day.





11:15

Conferring by phone with FOMC representatives on the day's program.



11:45

Buying bills from dealers in a market go round.



4:15^{PM.}

Sizing up market reactions to the Friday money supply data.

Photos by Arthur Kranisky

actively traded Government securities and for the latest opinions of money market analysts who use this device to get their views before customers. A few calls to dealers through the direct lines of the telephone console enable each trader to put down the opening price levels on the ruled tablets used to track each day's market developments. Meanwhile, the clerks have posted the price quotes established for yesterday's close on the long chalkboard, which wraps around one end of the room. They begin to get opening price runs from each of the five active dealers the desk uses to compile its composite snapshot of the market's price behavior. When the officers arrive, they take only a few minutes to catch up with what is happening and to pass on to the traders at the desk any points of particular interest picked up in the dealer meetings.

The daily call from the Treasury provides one of the fixed points in the desk's well-organized day. In preparation for this call, the manager or another senior officer reviews data on member bank reserves and borrowing, which have just been telephoned to his secretary by the research department. He notes how much the reserve outcome differs from the forecast made the day before. The reserve forecaster soon arrives from the ninth floor to brief the manager on how this reserve miss will affect nonborrowed reserves in the current statement week. The worksheet also shows how the Treasury's balance at the Reserve Banks is expected to behave for that day and the two following days. About 10:15 a.m., the Fiscal Assistant Secretary calls to compare Treasury staff forecasts of these changes with the New York estimates. He must decide whether to move funds between commercial banks and its balances with the Reserve Banks.

The Treasury's system of tax and loan accounts at commercial banks provides an important buffer to the monetary system, shielding the reserves of the banks from the large net flows of funds between the Treasury and the remainder of the economy. The conception is straightforward enough. A large part of the Treasury's tax receipts flow through the direct investment facilities provided it by depository institutions across the country.⁴

⁴The Treasury's depositories can choose whether to remit Treasury receipts immediately to the Reserve Banks or to retain them, incurring a note liability to the Treasury that is fully collateralized and pays 25 basis points less than the Federal funds rate. The depositories are divided into A, B, and C categories depending on their activity as depositories. As of mid-1981, there were 484 C depositories, 1,751 B depositories, and 2,578 A depositories.

It then transfers funds between these accounts and its checking accounts at the twelve Federal Reserve Banks as necessary to keep its Reserve Bank balances reasonably steady — at about \$3 billion in early 1982. Since the Treasury's checks are drawn against its accounts at the Reserve Banks, the Treasury routinely covers the estimated value of checks to be presented by making "calls" on depository institutions to transfer funds to the Federal Reserve. On other days there can be a net inflow to Treasury accounts at the Federal Reserve — usually when the Treasury receives cash from the sale of new securities in excess of the volume of securities maturing. Then, to offset the reserve drain that would result from subscribers' payments to the Federal Reserve in exchange for the securities, the Treasury can place excess funds in the direct investment facility it maintains with depositories.

In the daily telephone call, the Fiscal Assistant Secretary decides on the call, or direct investment, of funds to be made with the larger institutions — the C depositories — on the next business day. But on occasion the C depositories are asked to transfer, or receive, funds by 11 a.m. the same day because the Treasury must rebuild a depleted balance at the Reserve Banks or wishes to redeploy surplus funds. The manager of the account has a keen interest in these decisions because of their effect on bank reserves. Frequently, the daily calls split the difference between the Treasury and New York Reserve Bank estimates of what needs to be done. On occasion, however, the manager may ask that the balance be allowed to ride up or decline to assist with the management of reserves. For example, if RP collateral were in short supply relative to a short-run reserve need, the manager would welcome the help that a lower-than-assumed balance would give in achieving his reserve objectives.

Other topics come up at the Treasury conference call as well. Senior desk officers may pass along information about foreign central bank subscriptions to forthcoming Treasury issues, which often affect the projected cash position. The timing of future Treasury offerings and the associated payment dates may also come up. On other occasions, the desk officers will talk in more detail with the Deputy Assistant Secretary for Debt Management about the Treasury cash outlook and financing plans.

After the Treasury call, the desk officers usually discuss a tentative program of action for the day. The reserve data have

3. Formulating the Day's Program

already shown yesterday's reserve miss and whether discount window borrowing is close to desired levels. The reserve projector has given a rough estimate of what he now thinks nonborrowed reserves will average during the current statement week.

The practical question is: What is to be done in pursuit of the nonborrowed reserve target? Desk officers always know less today about current bank and reserve behavior than they will know a day or two later. They are very conscious that reserves may vary substantially from the forecast, and that banks may behave quite differently than desired.

The approach banks take to reserve management can substantially affect the market for reserves for much of the week, quite aside from the general availability of reserves in the system. All other things being equal, the Federal funds rate and borrowing at the Reserve Bank are likely to rise when the major banks elect to play it safe by accumulating excess reserves early in the week — for example, when holidays fall around the weekend. Conversely, if the major banks expect the Federal funds rate to be trending downward because money growth or economic activity is sluggish, they often are willing to accumulate sizable deficiencies early in the week in hopes of covering them at a lower Federal funds rate toward the end of the week.

The discussions in the manager's office review the new information available on both reserves and borrowing. On Thursday, of course, there is only a projection for the current week. But the officers may discuss whether any tightness or ease that developed in the money market on Wednesday, the settlement date, will carry over to affect bank attitudes toward the discount window in the week just beginning. A carryover of tightness may suggest an early beginning on meeting any projected reserve need to reduce the likelihood of a big bulge in discount window borrowing over the weekend. Alternatively, a very comfortable atmosphere may suggest allowing forecast reserve deficiencies to bite first in hopes that borrowing will not fall much below the levels implicit in the reserve path.

On Monday desk officers will know from the borrowing average of Thursday-Sunday how much discount window borrowing must rise, or fall, in the remaining three days to be consistent with the reserve path. Low use of the window during the first four days will require a very sharp rise for the remainder of the week. Conversely, very heavy borrowing early in the week will require a sharp fall in borrowing in the days remaining. In some

cases, heavy Friday borrowing will virtually guarantee that borrowing for the week and total reserves will exceed desired levels if the nonborrowed objective is met.

The desk's operational objective is the average level of non-borrowed reserves for the intermeeting period or subperiod as a whole. If one pumps in reserves to hit the weekly objective when borrowing has been excessive, ease at the end of the week tends to carry over to the beginning of the next statement week and lead banks to be more relaxed in managing their reserve positions. Alternatively, the desk can accept a moderate shortfall from its NBR objective with a view to making it up in subsequent weeks. Toward the end of the week, desk officers also have to weigh the possibility that the banking system's demand for excess reserves was incorrectly estimated at the time the week's reserves objective was set, and that nonborrowed reserves should be somewhat higher or lower on that account.

Such questions arise inescapably in the pursuit of reserve targets. If the desk plunges ahead mechanically, the likely consequence is interest rate instability, which tends to confuse the banks and other portfolio managers the Federal Reserve is trying to influence. But, if the desk is too ready to adjust each week's reserve objective, there is the opposite risk of deferring needed adjustments in borrowing and market interest rates. In fact, the manager usually has pursued a middle course, one which partially compensates for the vagaries of bank borrowing, while assuring that deviations in aggregate growth have their desired impact on interest rates during the intermeeting period.

When the desk officers discuss the tentative design of the day's program, the amount of reserves to be added, or withdrawn, to reach the nonborrowed objective is clear enough. But individual recommendations to the manager may differ, reflecting different degrees of confidence in the forecast and independent assessments of bank behavior in the current week. Market considerations, such as the availability of securities in the market for outright purchase or as RP collateral, also enter. A ten-minute discussion will air the most promising courses of action open to the manager. Much of the time there will be general agreement in this informal review on what is to be done. But there also are times when the choice is sufficiently close that the manager defers the decision until all can get a better reading on what is happening in the market for reserves that day.

4. *The Trading Room Scene*

A short stroll from the manager's office brings the desk officers back to the bustle of the trading room a little after 10:30 a.m. The senior traders on the desk quickly report the forces at work behind the price changes shown for the key issues they track on the working pads in front of them. They also recap the market's bidding ideas on any Treasury securities coming to market during the next few days. The behavior of the corporate and municipal bond markets and their interaction with the Government market is another point of interest.

The behavior of the Federal funds market and the success of dealers in financing their positions are important matters. Substantial misses in the projector's estimates of nonborrowed reserves may show up as greater, or lesser, pressures in the reserves market as banks seek to cover their requirements. A senior desk trader keeps close touch throughout the day with the Federal funds brokers and the money desks of major banks in New York City and in other major cities. She reports on the balance in the market between the demand for, and supply of, funds, and also on how major banks plan to meet their need for funds. Timely data on the reserve positions and Federal funds transactions of 15 major banks for the previous day provide good background for her discussions with the banks. Another trader is simultaneously tracking the progress the nonbank dealers are making in financing their positions. Both banks and nonbank dealers are, in fact, searching for overnight funds.

Other senior traders have been in touch with the foreign department to find out what foreign official accounts will be doing that day. By 11 a.m., or shortly before, they will know the aggregate purchases and sales of Treasury bills to be made and the volume of funds to be invested overnight in the RP pool. As the morning progresses, the totals are apt to change. But they usually are accurate enough at this point for desk officers to decide how foreign account transactions are to mesh with open market operations that day.

The officers on the receiving end of this information use it to refine their assessment of what needs to be done that day. Does the behavior of the Federal funds market suggest that reserves are more, or less, plentiful than the projector's tentative estimate at the time of the Treasury call? Are the banks approaching reserve management cautiously or with a willingness to let deficiencies accumulate?

Shortly before 11 a.m. the officers receive from the reserve

projector several sheets, detailing the latest forecasts of nonborrowed reserves, and a comparison with the week's nonborrowed reserve objective. With luck the Board staff's estimate of nonborrowed reserves will also be available. After a brief huddle with other officers, the manager or a senior officer writes a program of action, one which details the reserve situation and any other considerations that have influenced the approach taken. On Friday the program also will review the latest information on the monetary aggregates, and present adjustments being made in the NBR objective, either for technical reasons or for speeding the return of the aggregates to their desired paths.

Meanwhile, preparations are going forward elsewhere in the trading room for a staff pre-call to the Board and the Reserve Bank whose president will be sitting in on the 11:15 a.m. telephone conference call. On the staff call, which begins shortly before 11 a.m., a trader at the desk will provide in a standard format a formidable array of data on the behavior of financial markets, the reserves of the banking system, and the latest forecasts of nonborrowed reserves. Simultaneously, one of the desk officers will be reviewing all aspects of the data and the financial markets preparatory to speaking on the 11:15 a.m. call.

Each working day at 11:15 a.m. the manager, other officers, and senior staff members gather in the manager's office for a conference call, which links the desk with the Board's staff director for monetary policy and his staff, and with one of the Reserve Bank presidents serving on the FOMC. The call provides the Board staff with the desk's review of market and reserve developments and the manager's plan for open market operations. The staff condenses this in a brief report, which is placed before each governor by early afternoon and wired to each Reserve Bank president. The call enables the Manager to consult daily with one of the Committee members concerning the desk's execution of FOMC instructions. The president on the call not only has an opportunity to comment daily on the desk's approach, but also experiences all of the uncertainties and difficulties with which operations must contend between meetings. When the FOMC reviews operations at its next meeting, he will be well equipped to provide a policymaker's perspective on the events of the period.

The call itself usually runs 15 to 20 minutes. The desk officer

5. The Conference Call

speaking on the call opens with a review of price and rate movements in the principal securities markets and the influences market participants see at work. Mention is made of current developments in the gold and foreign exchange markets, although the staff director at the Board usually has a good fix on those markets from prior conversations with the foreign exchange trading desk. The desk officer turns then to the Federal funds market, giving the latest information on rates and on what progress the major banks are making in covering their reserve needs. Then he or she compares the New York's reserve estimates with those prepared by the Board staff. Early in the statement week, the estimates may differ by \$500 million or more. The call provides a convenient opportunity for learning whether the discrepancy stems largely from differences in projected float behavior or from other sources. Over the statement week the estimates usually come closer together, but differences of several hundred million dollars sometimes still remain on the Wednesday statement date. Finally, the desk officer reads the proposed program of action and asks the Reserve Bank president for his comments. Occasionally, a governor, sitting in at the Board, will also comment.

The responses of the presidents on the call vary considerably. Often a president will concur in the manager's approach with little comment. If a president has any concern about the way operations are unfolding, he is more likely to call later in the day to discuss them with the manager than to air his misgivings on the morning call. On the other hand, if it is an operational question, a president may ask whether the manager has considered an alternative approach and elicit from him or the officer on the call further elaboration of the reasoning that has gone into formation of the proposed program. Such a question might be whether consideration is being given to buying Treasury coupon issues as a means of meeting a reserve need, which stretches over the next several weeks. The discussion is unfailingly friendly as well as informative. If more discussion of recent developments seems needed, the manager usually calls the president after the day's operations are launched. With four Reserve Bank presidents outside New York participating regularly each year, the call provides the presidents first-hand contact with the translation of policy decisions into day-to-day desk actions. The New York Bank president is, of course, regularly briefed by the manager or other desk officers.

The staff director for monetary policy also uses the 11:15 a.m. call to give to the desk the latest information on the monetary aggregates. Usually by Wednesday morning his staff has a fairly good fix on bank deposits for the week ended the previous Wednesday. These will be incorporated in the M1 measure of the money supply to be published on Friday. The staff director, or his alternate, will give M1 estimates for the previous week. Often he also will give a first estimate of the current week's M1, based on reports by the larger institutions for part of the week and on similar reports from a sample of other institutions. These data are subject to further refinement on Thursday; by Friday morning the staff director will give the monetary data to be published that afternoon, the preliminary estimate for the week just passed, and the revised projections of these aggregates for the current month. The data already have been communicated to the New York Bank staff, along with the Board staff's projection of the demand for total reserves over the intermeeting period.

Friday is a special day, since the manager and staff director must review with their staffs the recalculation of reserve paths. This is the time for making any modifications warranted by technical factors or a need to augment the automatic response to deviations of the aggregates from path (Chapter 5). The difference between the Board staff's revised projection of total reserves over the intermeeting period or subperiod, and the nonborrowed reserve objective establishes the level of adjustment borrowing in the current and subsequent weeks that is consistent with the committee's M1 and M2 objectives. After preliminary discussion with the manager, the staff director reviews the matter with the chairman of the FOMC. In the desk's Friday program the manager details the reserve objectives for the week and the subperiod, with a brief explanation of how they were developed.

The manager and staff director keep the chairman fully informed of all significant matters relating to open market operations. The manager makes sure the chairman is informed in advance about large outright transactions, or operations that could have an appreciable market impact. The manager also is responsible under the directive for notifying the chairman whenever the Federal funds rate appears likely to be outside the range set by the Committee for an extended period. The chairman then decides whether consultation of the full committee is in order.

6. Executing the Daily Program

When the call ends, a bit after 11:30 a.m., the officers usually carry out the program outlined fairly quickly. To emphasize the break with the Federal funds rate operating strategy, the desk concentrates most of its reserve management operations between 11:30 a.m. and 12:15 p.m. This approach seeks to assure market participants that open market operations are directed at reserve objectives, rather than at maintaining the Federal funds rate within any particular band. On rare occasions, usually when an unusual rise or fall in the Federal funds rate suggests the reserve estimates are substantially in error, the desk may operate outside the normal time, but they are the exceptions that prove the rule. In conducting outright transactions, the desk frequently buys or sells securities during the afternoon for delivery a day or two later. These transactions have no immediate impact on reserve availability or the Federal funds rate; often, the reserve effect takes place in a subsequent statement week.

As noted earlier, System open market operations are generally meshed with foreign account investment activities to reduce the number of market entries by the trading desk. There will be no outright market transactions at all if the desk chooses to buy the net of Treasury bills being sold by foreign accounts or to sell from the System portfolio to meet the net buy orders of foreign accounts. Frequently, however, foreign accounts will be net sellers or net buyers of bills, when the desk has no need to be involved. If the net of foreign orders is small, less than \$100 million to \$150 million, the desk may shop them around the market to a handful of dealers. Larger foreign orders will require a go-around of all dealers to get competitive bids or offerings. System operations in RPs or MSPs for reserve management purposes may either precede or follow the entry for foreign accounts. The desk does not announce the magnitude of its own operations for reserve management purposes, although market participants are usually able to establish the scale by comparing notes after the operation is over. The desk does announce the approximate size of foreign account transactions to the market at the time of market entry.

Once the desk enters the market, operations proceed expeditiously under the supervision of the two officers charged with primary responsibility for the trading room. If the trading desk makes either RPs or MSPs in the market, six or eight traders, often with the aid of two or three officers, quickly announce the System's intent to the dealers with whom the desk trades in

a go-around of the market. The traders take pride in completing these notification calls quickly — usually in less than 60 seconds. Normally, the operation can be completed within 45 minutes, allowing time to assemble and aggregate the competitive dealer propositions and then decide on the stop-out rate, which determines the amount of reserves actually pumped in or withdrawn.

Outright transactions in either bills or coupon securities are more time-consuming, both because dealers contact a large number of customers and because a larger number of bids or offers have to be priced and recorded. Choosing among the propositions is also more complicated because a yield curve involves more choices than the single interest rate comparison typical of RPs and MSPs. Generally, an hour or more is required for a go-around in Treasury bills. A similar operation in Treasury coupon securities or Federal agency issues can easily require two hours, largely because of the increased number of maturities and the operational time required by desk personnel to compare offering yields relative to the yield curve.

The trading room is busy while a major operation is in process. The buttons on all the telephone turrets light up initially as the traders make their calls to traders at the dealer firms. A lull follows while the dealers' salesmen contact their customers and each firm's traders decide what they want to do for the firm's own account. Then, the phones begin to ring insistently as the dealers try to reach a trader at the Federal Reserve to take down their propositions. Traders record dealer bids or offerings on strips preprinted with two dealer names at the top of each strip. The issues involved have already been posted on each strip so that the amounts and prices bid for, or offered, can be listed quickly. Desk traders read back each dealer's propositions to guard against errors. The officers assemble the go-around strips used by the traders on one or more big boards. These allow a quick and accurate comparison of the rates or prices being quoted for different maturities.

After carefully choosing the better propositions from the array before them, the officers return the strips to the individual traders so they may notify the dealers as to which propositions were accepted and which rejected. Then, the traders must turn to writing tickets on the individual transactions with the dealers they cover. The tickets on outright transactions and MSPs are quite straightforward; the accounting unit in the adjoining room

will translate them through computerized processing into a multipart form, which specifies the securities to be received or delivered and the amount of money that is to move. The completed transaction form is then whisked by pneumatic tube to the government bond department on the second floor, where the actual exchange of securities and payments will take place through the Federal Reserve's computerized system. With RPs, the dealer calls in the collateral involved and the desk's traders set a price that allows a margin against the risk of price fluctuation. Once the pricing is completed, the tickets written by the traders follow the same channels as those for outright transactions.

Cash transactions — those that are settled the same day — affect the reserves of the banking system in short order. For example, securities purchased from the dealers, either outright or under RPs, are paid for by immediate credit directly to the reserve accounts of bank dealers and to the accounts of nonbank dealers at the commercial banks that clear for them.

When a dealer has served as an intermediary for a customer, he or his clearing bank tells the Federal Reserve Bank the name of the institution that will deliver the securities and receive payment over the Federal Reserve wire network. Purchases of the dealer's own securities also typically lead to a stream of payments after the initial credit, since the dealer has probably been financing them with RPs or bank loans, which must be paid off. Individual banks across the country benefit from an infusion of reserves, although they may not distinguish it from all the other bank and customer transactions that are flowing through their reserve accounts. In a similar fashion, sales of securities, either outright or under RPs, reduce the reserves of individual banks and the banking system.

The reserve effects of System transactions are quite predictable, but the reaction of the Federal funds market appears somewhat less certain with reserve targeting than was the case when the System's strategy focused on the Federal funds rate. As will be examined more fully in Chapter 8, banks seem to be somewhat more influenced in their reserve management than before by their interest rate expectations within the statement week and beyond. The Federal funds rate can, and often does, trade for a few days or even longer above — or below — what one might expect from average past relationships to discount window borrowing.

Accordingly, the desk may find that its actions have little immediate effect on the market for reserves, especially early in the statement week — unless its actions are quite large indeed. As the statement week progresses, the market becomes more likely to reflect the underlying relationship between nonborrowed reserves and required reserves. By Wednesday, the banks' room to maneuver is limited. Then the desk can estimate reasonably well how much the banks will be forced to borrow that night at the window if the week's nonborrowed reserve objective is achieved. In other circumstances, the volume of excess reserves to be pressed on the market can be estimated.

In conducting open market operations, the desk must focus on reserves day by day. It operates in a world of uncertainty — uncertainty about how nonborrowed reserves will behave, how much excess reserves banks will retain and what tactics banks will use in managing their reserve positions. Reserve management is also an interactive game. Beset by uncertainties of their own, banks need the buffer of the discount window as protection against the vagaries of daily money flows. For the money market banks these are quite large in relation to the reserve balances that they must maintain. The banks' freedom to maneuver may complicate the attainment of the desk's weekly nonborrowed reserve objectives at times, but such complications are a small price to pay for a smoothly functioning financial system.

The Committee's strategy for monetary control envisages hitting reserve objectives over intermeeting periods of six weeks or longer. That permits ample time for smoothing aberrant short-run behavior without sacrificing sustained responses to meaningful monetary deviations. The desk operates with incomplete information amid conflicting signals that cannot be fully understood at the time. But Committee members can be confident that the outcome over longer periods will be close to the Committee's desires — at least as far as reserves are concerned.

The desk operates in an environment in which the emotions and reactions of traders move global financial markets more from minute to minute than do the analyses of economists. There is no substitute for the "feel of the market" as participants try to sort out emerging trends in bank behavior and portfolio management from ephemeral market movements. Caught up in the churning life of the financial markets, those on the trading desk may well suffer from market myopia. At the same time, they also

*Communications Within
the System*

are exposed daily to the judgments that market people are making about the effectiveness of monetary policy. One of the desk's functions is to keep others in the System posted, not only about how operations are carrying the committee's thrust forward into the financial arena, but also about the kind of feedback that policy is getting. Visits by System research personnel to the desk and regular desk reports to the committee are important means of maintaining a clear understanding of both key aspects of the monetary policy process.

Most policymakers can spare little time to visit the desk for firsthand exposure to the System's interface with financial markets. They pose their questions to the manager in the formal sessions of the committee, or buttonhole him in the corridors of the Board during breaks in the committee's discussions. The Reserve Bank presidents also frequently ask about market perceptions during the camaraderie that marks the regular ritual of checking into a nearby hotel on the night before the meeting, going out for dinner, and shuttling over to the Board for breakfast the next morning. But policymakers understandably rely primarily on their staffs to monitor open market operations and the financial markets.

The trading desk has a regular flow of staff visitors from both the Board and the Reserve Banks, who come to observe operations to help them brief their principals or do monetary research. Usually visitors participate in the desk's daily routines for a week, as well as spending time with Government securities dealers, a bank money desk and a Federal funds broker. Desk officers lead the visitors through the morning dealer visits, the Treasury call, and the 11:15 a.m. call, explaining the array of data that feed into daily decision making. Interviews with the research personnel that project both reserves and money supply acquaint visitors with the current state of the projector's art, while the daily experience of reserve misses drives home the range of uncertainties within which operations are conducted.

For desk personnel these recurring contacts with System economists with diverse points of view, contribute to the intellectual challenge that makes the desk a stimulating place to work. The personal interchanges that mark these visits make it easy for any visitor to get on the phone to a desk officer whenever a question arises about the current conduct of operations or technical issues related to financial markets.

The desk's main channels for communicating with the rest of

the System are the daily wires and written reports sent from New York to the Board and the Reserve Banks. Wires sent daily from the trading desk inform everyone of developments in the money and Government securities markets at mid-morning and in late afternoon. As already noted, the Board staff report on the 11:15 a.m. call gives a full view of reserve data, the markets, and the desk's program for the day.

On Friday of each week the trading desk mails a comprehensive report on operations for the statement ended on the preceding Wednesday. This report, prepared in the analytical division under an officer's direction, describes the daily conduct of operations and tracks the behavior of the reserve measures in relation to their desired paths. It also conveys the latest data on the monetary aggregates, as well as the projections being made by the Board and New York Bank staffs. Separate sections are included on bank reserves and the money market as well as the Government, corporate and municipal securities markets. Statistical appendices summarize all transactions in the System account, as well as information on the financial markets. Before each FOMC meeting, the desk also prepares a brief summary report of operations and financial markets since the last Committee meeting; a supplementary page, distributed on the day of the meeting, summarizes developments in the three previous business days. Annually, the officers most closely involved with the reports prepare a comprehensive report for the year, which analyzes policy implementation and financial market developments from this longer perspective. In modified form, major sections of this report have been published annually since 1963.

The Transmission of Monetary Policy: The Financial Markets.

The desk's execution of the Committee's reserve strategy sends strong impulses coursing through the financial system. The influence exerted on financial markets appears to have become both more powerful and yet paradoxically, more uncertain in recent years. By changing its own strategy, the Federal Reserve altered significantly the process through which policy affects expectations and decisions, in ways still imperfectly understood by policymakers and market participants alike.

Changes in the financial markets and institutions have also affected the outreach of policy. The integration of world financial markets has strengthened policy's external effects, while domestic markets also reflect the feedback from other economies and national policies. Meanwhile, U.S. markets and institutions are adapting rapidly as the savings and investing public displays growing sophistication in coping with inflation. Institutional strategies for survival and growth in a hotly competitive environment are affecting more and more the cyclical patterns of behavior so familiar from the past. How these changes will modify further the interrelation of monetary policy, the financial mechanism, and the world economy remains a conundrum for the future.

A Reserve Strategy – New Challenge to Financial Markets

The FOMC's adoption of a reserve-oriented approach to open market operations in 1979 forced financial managers everywhere to rethink their strategies for managing assets and liabilities. When the Federal funds rate was the target of desk operations, interest-rate forecasting fell into two distinct, but related, exercises. At the short end of the spectrum, market participants forecast interest rates by judging how rapidly the monetary authorities would raise or lower the Federal funds rate; the judgment often depended as much on assessing policymakers' willingness to allow interest rates to change as on how the economy was behaving. For longer term interest rates, market participants weighed the appropriateness of policy actions in relation to their own forecasts of economic activity. If policymakers seemed reluctant to allow short-term rates to rise rapidly in periods of economic growth to restrain money and credit growth, nominal long-term rates would increase to allow for the possibility of increased inflation. The yield curve was anchored at the short end by the Federal funds rate, but the further one moved out the maturity scale the more expecta-

tions of economic activity and inflation came into play.

The switch to reserve targeting changed the signalling system on which the market had come to rely. The new approach assured that monetary overruns would bring immediate countervailing pressures on interest rates. Subsequently, through changes in the basic discount rate and a newly introduced surcharge for large banks, the System drove home the point that it would resolutely resist excessive monetary growth.

Market participants had to shift their emphasis when making interest rate forecasts. The Federal funds rate no longer served as a reliable day-to-day or week-to-week guide to the leverage the authorities were trying to exert on financial decision. Analysts had to forecast the behavior of money over the next few months to project the timing of interest rate changes, since money growth had quasi-automatic effects on interest rates. Analysts also had to look to the economy's performance, since that conditioned money demand as well as credit requirements, resource deployment, and inflationary pressures over a longer horizon.

The practical effect of the new procedures was to make more immediate the influence that money supply behavior and the economic outlook had on interest rates. Paradoxically, confidence had eroded in the ability of economists to make accurate forecasts of either. Increased uncertainty on both counts caused rates on intermediate and long-term securities to swing as widely from week to week as during major cyclical changes in less inflationary and uncertain times. Short-term rates were also affected. Changes in expectations about either money supply or economic behavior changed bank and market ideas of how the Federal funds rate would change in the weeks ahead. Yet, over a few weeks, the Federal Reserve's management of reserves set limits on the length of time that market expectations could sustain rate movements inconsistent with its supply schedule for reserves.

In the new environment market participants keep tabs on how the Federal Reserve pursues its aggregate objectives as well as on the economic outlook and supply-demand conditions in the money and capital markets. Money market economists help risk-takers anticipate emerging trends and track developments against expectations. The banks, as noted earlier, help transmit monetary policy impulses in addition to accommodating customer demands for credit. Equally sensitive are dealers and

underwriters whose highly leveraged positions force them to tack quickly to take advantage of favorable winds or to move close to shore whenever the situation becomes too uncertain or threatening. Sustained monetary pressures spread from the money market to the capital markets, affecting not only borrowers and the activities they seek to finance, but also society's collective choice between savings and consumption.

Monetary policy's impulses also spread quickly to affect the foreign exchange market and the international money market. As governments and central banks abroad respond, they affect financial and economic developments in their own economies; these feed back to the U.S. economy. No country is an island in the world economy.

***Monitoring the Fed and
the Economy***

All players in the money and capital markets watch what the Federal Reserve is doing. They try to put themselves in the desk's shoes, both to understand the basic thrust of policy and to detect any signs that objectives are changing. Money market economists help track the trading desk and its activities, as well as monitor the FOMC and the economy. Forecasting interest rates is the specialty that sets them apart from those business economists who make detailed forecasts of economic activity.

Money market economists are a diverse group. If there is any common thread in their backgrounds, it is likely to be a stint somewhere in the Federal Reserve System. Working knowledge of some aspects of monetary policymaking or its implementation has proved a highly marketable skill over the past three decades. Federal Reserve alumni form a redoubtable group of money market advisers. Other economists have become equally adept at using the analytical tools of their arcane trade, often through apprenticeships at commercial banks or financial firms.

Some degree of specialization exists within the fraternity. Quite a number are masters of the nitty gritty of Reserve Bank balance sheets, the Treasury's financial statements, and transactions of the off-budget government agencies. Many analysts have had to venture also into projecting the money supply, given the importance of the monetary aggregates to central bank policy and practice. Still another group of economists focuses more on a broad picture of the economy than on the inner workings of the money market. However, they too are primarily concerned with the financial system, often with particular attention to the flows of funds expected in major sectors of the financial markets. A few

have achieved sufficient stature that their appraisal of the economy's problems and policies exerts significant influence on the financial markets; the markets themselves can influence, in turn, the course of national economic policies.

Analysis must, of course, be communicated to be effective. There are few shrinking violets in the trade. Analysts generally are able to articulate quickly opinions on a sizable number of abstruse issues. Those who work for banks or dealer firms provide regular briefings to their own managers of risk, and are close at hand to analyze current developments during the day. The sales force at most firms circulates rapidly the current views of their in-house experts. The economists also meet with clients — at the home office, regional financial centers or abroad. Analysts also are available to customers for telephone consultation in varying degrees. Their expertise, or boldness, in making interest rate forecasts helps them achieve visibility through the financial press. They are much in demand as speakers to forums of bankers and others who manage assets and liabilities for a living.

The independent entrepreneurs among the fraternity often present their basic analyses to clients through a market letter, usually a weekly commentary on recent and prospective developments. These analysts find it hard to meet customer demands for instant analysis through telephone consultations. Accordingly, several provide daily commentary on prospective and actual Federal Reserve operations through computer information systems, which can be accessed by paying customers. The popularity of the service has led to its expansion to Europe and the Far East through news wire systems operating abroad. Surveys of their fellow forecasters have been developed so that subscribers can learn the range of the estimates being made by money market economists of the money supply and other key economic variables.

In tracking and anticipating the desk's actions, money market economists begin with a close reading of the FOMC directive and policy record; both are released for each meeting a few days after the subsequent FOMC meeting. The economists try to understand the Committee's concerns, the analysis of its staff, and the balance of opinion within the Committee. They project what the FOMC will decide even before it meets. After the meeting, they formulate the initial instructions they think the Committee has given the trading desk.

1. *Projecting Reserves, the Money Supply and Desk Activity*

The initial assumption for adjustment borrowing provides a reference point for assessing future changes in the amount of pressure being exerted on the banks. Even without knowledge of the reserve paths and the rates of M1 and M2 growth embodied in them, changes in average borrowing at the Federal Reserve discount window over a few weeks should provide unambiguous information on the relation between bank demand for reserves and the desk's supply schedule. Most analysts start with the assumption that borrowing will continue initially near the level recently prevailing. They also will give a range of one percentage point or so for the Federal funds rate that they think will be consistent with such borrowing—usually also close to prevailing conditions.

Approximating the Committee's choice of M1 and M2 objectives is another basic element. To develop a view of money market conditions over the coming month or two, one must estimate how M1 and M2 are likely to behave compared to the growth assumed acceptable to the FOMC. The policy records for previous FOMC meetings are helpful. If growth thus far in the calendar year has been below the annual objective, there is some disposition to expect the Committee will allow growth to be a bit faster until it gets closer to path. Conversely, rapid growth thus far might lead an analyst to expect the Committee to reduce the future growth desired.

In making actual projections of money for the current month and the one following, analysts examine carefully seasonal factors and patterns of past behavior at similar stages of the business cycle. The weekly publication of money supply data each Friday gives market analysts the same basic data as their Federal Reserve counterparts. If Fed-watchers expect a large aberration in monetary growth because of well-known factors, they may assume the monetary authorities will themselves allow for that fact when establishing reserve targets for the desk. Any marked deviation expected from a reasonable guess at FOMC objectives usually results in a more, or less, unqualified opinion that the pressure on the banks will increase, or decrease, accordingly.

To track desk operations against money stock forecasts, analysts try to distinguish between the defensive and dynamic aspects of open market operations. They start with a forecast of the factors affecting bank reserves, just as do the desk's research associates. A basic source is the weekly data on the combined balance sheets of the Reserve Banks for the week ended

Wednesday; these are published each Friday, except when a holiday delays publication. The weekly data include information on member bank and Treasury balances, Federal Reserve float, the System portfolio, and other asset/liability categories, both on a weekly average basis and for Wednesday alone. The analyst uses the data to revise estimates of how much the trading desk will have to add to, or withdraw from, reserves during the current and subsequent statement weeks to maintain borrowing at the assumed level.

To add spice to the projections, the money market economist often forecasts what the desk is likely to do in the market each week, even each day. The outside forecaster operates under a handicap during the week since he does not have the daily flow of reserve information available to his Federal Reserve counterparts. While he can estimate the scale of daily desk operations in the open market, he can only guess at how Federal Reserve float is behaving or the size of the desk's transactions with foreign accounts. An analyst's expectations of Federal funds rate behavior during a week will also allow somewhat for the effect that tight or easy Wednesdays tend to have on bank and Federal funds rate behavior in the following week.

The analyst is a keen observer of the trading desk's actual operations. The Federal funds rate is closely watched, however much desk officers admonish that the rate is free to respond to supply and demand in the market. The rate may indicate reserve shortfalls or overshoots, which require a correction of reserve estimates. It also responds, as noted earlier, to changing reserve management tactics of the banks. But more importantly from the analyst's viewpoint, the Federal funds rate can respond to a change in reserve pressure engineered by the desk. The stakes on making a correct call are so high that there is a subliminal tendency for the analyst to evaluate daily desk operations with reference to the Federal funds rate. Fed watchers have to be on guard against overestimating the certainty of the desk's own knowledge of reserves and money supply growth at the time it operates. Given the uncertainties with which they must contend, these economists perform well in providing relevant counsel to their principals.

Detecting changes in reserve pressure is so important that money market economists use both their monetary projections and daily analysis of the desk's activities in judging whether a change is in process. Monetary overshoots or shortfalls seem to

run in strings, so that analysts become increasingly tense if the weekly data begin to show persistent strength or weakness in relation to their expectations. The watch on the Fed then becomes even more anxious than usual, and the entrails of daily operations are examined intently for confirmatory evidence of a change. Periodically there are false starts, with individuals buying in hot pursuit of a presumed change, while others interpret the same signs as being within the usual range of variation. Even before the full chorus joins in identifying a change, the market's tendency to charge off in the anticipated direction can be startling.

*2. Economic Forecasting and
Related Matters*

The financial economist's specialty is projecting interest rates and the flow of funds through the different sectors of the financial markets. The economist is likely to be especially skilled at interpreting the continuing adjustments in recent and projected data on the Federal budget, because of the budget's economic significance and its importance in determining the volume of marketable securities to be sold to the public. Financial economists pore over the fine print in the budget documents, then estimate what new spending commitments and tax actions are likely to emerge from the Congressional mill. Since the Treasury and off-budget agencies are by far the largest borrowers in the financial markets, their future activities have a major influence on the outlook for interest rates.

The tribe is not bashful about differing with the Administration concerning the prospective size of the Government deficit and the net cash borrowing to be done by the Treasury. Those bankers and investment bankers who consult with the Treasury just prior to its quarterly financings depend on these analysts a great deal. The Treasury's debt managers benefit from knowing the range of estimates circulating in the market, as they design the borrowing program. Adverse market reactions to the Government's tax and spending program can at times generate strong pressure for a change in the program.

To forecast private economic behavior, financial economists make comprehensive forecasts of the supply and demand for funds by the consumer, business, government and foreign sectors of the economy. They trace the flow through different financial intermediaries and markets to the extent that savings and investment are not made directly by the economic actors themselves. Such forecasts typically require iterating between pro-

jected behavior of the real economy and the financial flows, until the two forecasts appear reasonably consistent. The modeling involved relies heavily on individual judgment; experience with econometric techniques plays a supporting role.

One benefit to the investment banking community of this approach is that it builds up a picture of the demands likely to fall on particular financial markets. Detailed consideration is given to sectoral income and investment plans. Flow-of-funds analysts can also give due regard to the desire of business corporations to maintain balance between short- and long-term debt. In developing their estimates, they develop as well a sense of the interest rate changes likely to be needed to bring saving and investment into balance in the economy. The predictive value of interest rate forecasts often depends more on how well the analyst anticipates developments in the real economy than on the numerical array of estimated flows compiled.

Other financial economists concentrate on the spending behavior of the various economic sectors in relation to the Federal Reserve's announced objectives for monetary growth. Building estimates of nominal GNP growth sector by sector, analysts ask themselves what velocity of money turnover is consistent with the annual monetary goals. If the required rise in velocity seems high by historical standards, they will expect upward pressure on interest rates. Alternatively, if they foresee sluggish GNP growth and a lower rate of turnover in money than has recently prevailed, they are likely to forecast a decline in interest rates.

When forecasting interest rates on short-dated instruments, money market analysts are likely to be strongly influenced by their analysis of recent money supply developments and desk operations. For longer term rates, their expectations of the economic outlook and inflation become more important. A rule of thumb frequently used is that the long-term Government rate should be three percentage points above the expected inflation rate over the long term. In less inflationary times, analysts did not expect a rise in the inflation rate to lead to a corresponding change in long-term rates because price pressures and interest rates were expected to recede toward previous levels in the next economic downturn. After experience with the upward ratcheting of prices in successive economic cycles in the 1970's, analysts may at times project current inflation rates when the economy is growing. Pessimists, on occasion, may even anticipate further ratcheting. The dispersion of inflationary expectations can lead

to quite different interest rate forecasts, even when projections of nominal GNP growth are similar.

Money market economists hew closely to the adage, "If you have to forecast, forecast often." An economist revises his estimates when incoming evidence does not square with his expectations. Most practitioners reach their judgments in a disciplined and reasoned way, free from the hair-trigger reactions of market traders to every new bit of information. They do not change opinions lightly or capriciously. Continuity is one mark of professionalism. If one of the more respected among the group changes his mind in a public speech or other pronouncement, the market may well react sharply until it can evaluate the change of view.

The hunger of market participants for information has placed new demands on the economists who work in financial markets. They now produce advance estimates of key economic statistics to give market traders a benchmark for evaluating the data when they are released. As noted earlier, the weekly money supply report is important in tracking monetary policy, although the volatility of M1 makes it difficult to predict. Somewhat less variable are the monthly series on the economy — retail sales, production, employment and prices. Advance estimates of these numbers are widespread. Participants learn what the range and mean of market estimates are a day or two before the official data come out.

Decision Making in the Money Market

The ripples set in motion by the trading desk spread in ever-widening circles with great rapidity to affect the banking system, domestic and international money and capital markets, and economic activity at home and abroad. The banks provide much of the dynamism of policy's thrust. But the speedy transmission of information and analyses assures all players a near-equal start in the adjustment process.

1. The Banks

The System's reserve targeting approach to open market operations has complicated the asset-liability management process described in Chapter 3. Asset planning at banks always reflects a longer term view of the economy's performance and the probable credit demands of customers. But the increased short-run variability of the Federal funds rate has transformed the process of raising funds and making investment decisions. Asset-liability committees (ALCOs) have to contend not only with cyclical rate

changes, but also with rapid swings in interest rates in response to variations in monetary growth or market expectations. Longer term strategies can come unstuck when rapid swings in credit demand and borrowing costs threaten the stability of quarterly earnings.

The banks find the new environment as troublesome as other participants. Their own money market economists are as skilled as any, but bankers are not immune to the enthusiasms of the market. Nor can their funding decisions always await confirmation that the central bank is exerting more or less pressure on bank reserves. When interest rates are volatile, the larger banks place greater emphasis on risk aversion and arbitrage. To reduce their exposure to interest rate risk, they have increased the proportion of business loans made on a floating rate basis. The markup over cost such lending makes possible affords considerable protection to bank earnings from unexpected changes in rates.

Bank activities cannot escape for very long the sustained changes in interest costs generated by the central bank's reserve-oriented strategy. Sometimes, the banks will anticipate the changes flowing from the behavior of M1 and M2, pushing the Federal funds rate sharply in the appropriate direction. At other times, the Federal funds rate may respond sluggishly because the trading desk has difficulty in hitting its nonborrowed reserve target, or because the major banks operate as though reserves are in shorter supply, or are more abundant, than is actually the case. But the message of the reserve path will get across to those on the firing line at the banks, usually within two or three weeks.

The strategic decisions banks make, and their methods of carrying them out, continue to be geared to the interest rate outlook, but with much greater emphasis on hedging than before October 1979. Once bankers convince themselves that higher or lower interest rates are ahead, they are aggressive in carrying that view to the market. In periods of rising rates, their bidding for CDs accelerates the increase in short-term rates. When aggregate growth slows, the willingness of major money market banks to replace CD maturities with Federal funds purchases likewise reinforces the fall in rates. Banks adjust lending terms with dispatch. The cost of acceptance credit moves directly up or down, of course, with money market rates. Short-term loans are increasingly priced at a markup over corresponding bank costs. The prime business lending rate moves up quickly to re-

flect rising marginal costs. The downward adjustment is typically more sluggish, in part because borrowing in the bond market is the alternative source businesses rely on for intermediate-term credit. Banks also price term loans at a markup over the London interbank offering rate (LIBOR).

Banks, both domestic and foreign-based, carry the impetus of reserve pressures quickly into the international markets they serve. Through overseas branches and international banking facilities, the U.S.-based banks bid up, or down, Eurodollar rates in step with domestic CD rates. They become net placers of funds in that market, or takers of funds from it, depending on the relative strength of loan demand in the two markets. Terms on outstanding Euroloans adjust automatically either with the LIBOR rate on six-month deposits in London, or the prime loan rate in the United States. A general tightening of credit terms also may develop when banks come close to self-imposed prudential limits for selected borrowing countries. To the extent that developments in U.S. monetary policy and the balance of payments affect the dollar, bank activities transmit that influence to the exchange markets.

2. Dealers and Underwriters in Securities

The transmission of monetary policy impulses through the financial system may appear more complicated now than it used to be, but the process probably is also more powerful. Since market participants can no longer look to the Federal funds rate as a reliable policy indicator, they look more to prospective economic developments in forming rate expectations. New economic data and changing expectations regarding fiscal policy, Treasury financing, and international developments are also important. Swings in market sentiment about the rate outlook can influence the Federal funds rate and financing costs for a time, either reinforcing or reducing the impact of the Federal Reserve's management of reserves.

The ability of markets to run on their own fuel is limited to a few weeks at most. A burgeoning of market inventories, when dealers anticipate falling interest rates, cannot be sustained if the trading desk's reserve objectives fail to validate market expectations. A rise in inventories to be financed usually prompts a rise in the RP rate closer to the funds rate and touches off a corresponding correction in position. The enhanced sensitivity of the yield curve to financing costs, in part through operation of the futures market, ensures that reserve pressures

will exert a pervasive force on all maturities.

The capacity of financial markets to take large positions and to distribute securities grew enormously in the 1970s. The drum-beat of the large Treasury financings needed to cover recurring Federal deficits necessitated greater underwriting by the primary dealers in Government securities. Trading accounts at banks and brokerage houses, as well as private speculators, augmented distributive capacity. Collectively, these participants took the risk of bidding in Treasury auctions with a view to selling within a few days at a higher price to more permanent holders. The scale of the Treasury's needs, and the frequency of its trips to market, assured profitable opportunities for trading and underwriting to well-capitalized risk takers. The facility with which Treasury financing was accomplished testified to the market's ability to position itself properly before Treasury sales, to take on very large amounts of new issues, and to redistribute them quickly — at a profit over the long haul, though by no means on every occasion.

The growth of the futures market in Treasury and GNMA securities helped expand the underwriting capacity of all debt markets and integrate them more tightly. Futures contracts on Treasury bills and bonds, in particular, enable dealers in all securities to manage their risks better in treacherous markets. Market makers can deal directly with customers in the cash market while making offsetting transactions in the two active futures contracts. Underwriters of corporate and municipal bonds can reduce their underwriting risk on new issues by shorting the Treasury bond futures contract as well as by entering into standby contracts and forward transactions.

Futures market activity mushroomed in the late 1970s as the volatility of interest rates increased. Additional speculative capital was attracted by the enormous leverage implicit in being able to buy a \$1 million bill contract or a \$100,000 bond contract with the payment of only a few thousand dollars. The risks are great, of course, and losses can be large, as many participants discovered. But presumably, participants as a group have shared in enlarged underwriting profits. For their part, debt issuers probably benefit from the increased availability of underwriting capital.

Futures markets also strengthened the links between short-term rates, which the System's reserve strategy affects most directly, and rates in the capital market. A heavy volume of arbit-

rage serves to keep prices in line with cash and futures markets. In the process the primary dealers in Government securities normally acquire large outright positions in Treasury issues against short positions in the futures market. In effect, dealers provide a service to speculative buyers, financing the outright positions that are the counterpart of the speculative long positions held in futures contracts. Arbitrage profits provide a return on the capital and manpower used in the financing activity. The futures market is also important to the dealer in establishing accurate prices — especially for individual longer term issues that trade much less actively than does the bond future contract.

Prices in the futures contracts — whether for Treasury bills, bonds or GNMA's — differ from those on the underlying instruments by the estimated financing costs over the period until the securities are to be delivered under terms of the contract. Hence, unexpected changes in the Federal funds rate and the RP rate immediately generate a realignment in securities prices in the futures and cash markets that allows for the changed perception of financing costs. Since dealer positions are substantially larger than they would be without the futures market, a change in the pressure on bank reserve positions exerts a considerably stronger force on all maturities than it did in the mid-1970s. The management of reserves also affects related debt markets, whose participants hedge interest rate risk through the purchase of futures contracts.

The critical importance of financing costs to trading and underwriting decisions forces market participants to focus on the Federal funds rate from day to day, sometimes even hour to hour. What the market wants to know, needs to know, is the Federal funds rate that corresponds to the bank reserve positions the trading desk is trying to achieve. Participants could then judge what the RP rate should be, given their knowledge of market positions and the availability of financing.

If the desk does not provide signals concerning the likely relationship between reserves and the RP rate, the market has to develop its own estimates in order to function. The desk may protest that it is only managing reserves, not interest rates. But market analysts and traders will watch its every move for suggestions of what Federal funds rate level the desk thinks is consistent with its reserve objective. From the market's viewpoint, the exercise is eminently rational. The desk has a better view of its reserve objectives than anyone in the market, and is expected to

have some sense of the central tendency in the Federal funds rate. Also it is known that the desk uses the rate, at least marginally, to evaluate the accuracy of its own reserve projections.

In fact, the trading desk's concern is with its reserve objectives; it feels free to operate over a wide range of rates. Market analysts generally recognize how importantly reserve misses and bank behavior contribute to short-run changes in the Federal funds rate. Still, traders have to contend with the possibility that observed short-run changes in the rate will not be merely transitory. Securities prices tend to move up or down whenever Federal funds trade at new levels for a few days.

The financial markets perform in some ways like a great computer, registering individual judgments about the implications of current desk operations, monetary policy, and economic developments, for the future course of interest rates. They are subject also to all the emotions that move people — hope, fear, greed. Their behavior is often a heady mixture of rational analysis and mob psychology.

Participants trade anything longer than the shorter maturities on the basis of where Federal funds and other rates are expected to be over the weeks and months ahead. Often they are uncertain about where the funds rate is and where it is going. At other times, the direction of change, if not the speed, will be clear. Market expectations are then likely to push the Federal funds rate, and related short-term rates, up or down more than the desk's underlying reserve targets would suggest. Expectations themselves accelerate portfolio adjustments in the direction of returning the monetary aggregates to path. However, the extent of this effect should not be exaggerated. By far the greater part of significant movements in rates reflect deliberate Federal Reserve decisions to change the reserve paths or the discount rate.

The transmission of policy impulses to the capital markets is rapid, but their effect on interest rates is less certain. Dealer arbitrage between the cash and futures markets insures that changes in financing costs produce corresponding adjustments in the long-term markets. Still the lasting effects on long-term interest rates depend on the conclusions borrowers and lenders reach about the future course of economic activity and inflation.

Expectations of long-term interest rates depend in large measure on economic forecasts. Credit demand in the aggregate tends to rise and fall with the business cycle. Long-term credit demands typically rise in the recession-recovery phase of the cycle,

when the Federal deficit increases, housing credit expands, and the corporations are refinancing short-term debt incurred in the previous expansion. One expects long-term rates to be under less downward pressure than short-term rates when the economy slows down. The transmittal to long-term interest rates of any rise, or fall, in short-term rates depends heavily on how far along the expansion, or recession, is in relation to past cycles and how long participants expect the current phase to last.

Market participants have a hard time concluding what rates of future inflation should be built into long-term interest rate levels. Expectations of inflation tend to rise and fall with the business cycle and the behavior of prices. In the recession-recovery phase, price increases are typically restrained by the availability of capacity and by productivity gains. In the later stages of an expansion, price pressures intensify and markets tend to raise their expectations of future inflation.

In assessing the long-term outlook for prices, a key question is the priority society is likely to give to reducing the rate of inflation. Experience has made investors skeptical of the assurances of political leaders and monetary policymakers. The struggle of groups within American society to maintain or increase real incomes in the face of a decline in productivity also makes analysts doubtful of a rapid reduction in wage demands. To the extent monetary policy has credibility in the market place, attention tends to turn to fiscal policy, since government spending has tended to outpace revenue gains for many years. Inflationary expectations, once established, become difficult for policymakers to dislodge.

9

The Transmission of Monetary Policy: The Credit Markets And The Economy

Monetary policy influences economic activity by affecting the cost and availability of money and credit to those who produce and consume the nation's output. The Federal Reserve's supply-oriented approach to open market operations interacts with the banking system's demand for reserves to establish the Federal funds rate. Given the outlook for the economy, inflation, and credit demands, interest rates emerge in the credit markets that allow for variations in the maturity, credit risk, and tax status of debt outstanding.

Confronting choices of interest rates and maturities, holders of assets and those saving from current income distribute their resources between money and other assets in ways that tend to restore money and credit growth to the pace desired by the central bank. Interest rates affect how consumers divide their incomes between consumption and the savings set aside to provide future income. They also influence spending by affecting consumer wealth, the value of real and financial holdings. Interest rates also affect investment plans and credit demands by businesses, and state and local governments. Monetary policy affects aggregates demand, employment and prices.

Monetary Policy and Yield Curves

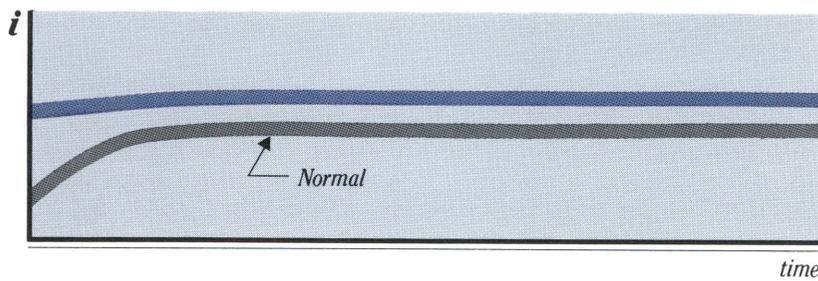
Open market operations affect first the market for bank reserves and the Federal funds rate. In the overnight market for bank reserves, the interest rate is a joint product of Federal Reserve actions and the banking system's demand for reserves. A reserve-oriented strategy insures that rapidly rising demands for money and credit in an expanding economy will raise the Federal funds rate while economic weakness will produce downward pressure on the rate. Judgmental adjustments of the reserve path or the discount rate can be used to speed changes in rates. Beyond the overnight market, interest rates reflect the strength of the economy's current demands for money and credit, and market participants' expectations of future economic activity, inflation, and interest rates.

Participants in the financial markets speak, somewhat wistfully, of a "normal" yield curve, one in which interest rates rise as the term to maturity increases. Even when interest rates are expected to be stable near current levels in the future, investors require a higher yield on longer term obligations for giving up the liquidity of short-term instruments. Owners of a security maturing in 2, 10 or 30 years assume the risk that they may have

to sell it at a loss before maturity. The higher yield also allows for the possibility that inflation and interest rates may not remain stable but rise secularly. In practice, expectations of future interest rates strongly influence the shape of the yield curve. A steep upward slope between three-month and one-year maturities suggests that market participants expect the rates on three-month issues to rise sharply over the period. A buyer of a one-year issue realizes a return that is the sum of the expected

Chart 19 Yield Curves

Fig. A



Flat 
 Normal 
 Inverted 

Fig. B

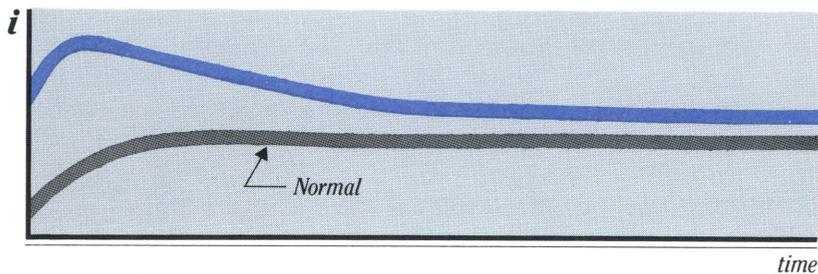
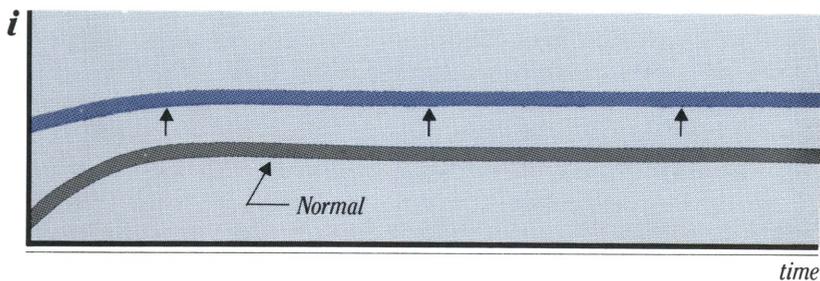


Fig. C *Inflationary Expectations*



returns from a succession of three-month investments plus a liquidity premium for holding the longer security. When short-term rates rise above those available on longer term issues, this “inverted” yield curve reflects market expectations that short-term rates will decline from their current levels.

The yield curve for Treasury securities serves as the reference standard for all market participants (see Chart 19, page 161). Such securities lack the credit risk attached to other securities and enjoy a broad and active secondary market. Debt instruments issued by the federally sponsored credit agencies and by private business typically have higher yields for corresponding maturities. The size of the rate differential reflects the market’s allowance for lesser marketability and the risk that the borrower will not repay.

The normal yield curve exists only when the economy is operating well within its capacity limitations. An upward sloping yield curve is characteristic of recessions when short-term rates are falling and of recoveries as long as upward pressure on prices is modest. Once, however, demands for money and credit exceed Federal Reserve objectives, the Federal funds rate and other short-term rates rise. The yield curve then tends to flatten out (see Chart 19, Figure A, page 161). Short-term rates rise more than long-term rates as long as participants believe that monetary and fiscal policy will effectively contain inflationary pressures.

When an economic expansion seems likely to encounter bottlenecks and push up prices, the risk increases that excessive credit demands will lead to overshooting the Federal Reserve’s monetary goals. When the Federal Reserve acts promptly to contain monetary growth, short-term rates will rise still further, but long-term rates will not rise as much, because participants do not revise their inflationary expectations appreciably higher. (Fiscal policy can help stabilize such expectations if it generates a budget surplus as the economy approaches full employment.) An inverted — i.e., downward sloping, yield curve (see Chart 19, Figure B, page 161) will then reflect market views that short-term interest rates are high enough to slow money growth, the economy and inflation; interest rates will be expected to decline again in the foreseeable future. If participants conclude, however, that monetary and fiscal policy will not brake excessive demand, then long-term rates will move up with short-term rates to reflect the worsening price outlook (see Chart 19, Figure C, page 161).

So long as society wants to contain or reduce inflation, the Federal Reserve has to allow short-term rates to rise in economic expansions to the point necessary to restrain growth in money and credit. Should an expansion generate excessive demands for both, then the rise in rates will lead in time to a weakening of the credit-sensitive sectors of the economy. Economic buoyancy, or excessive wage demands, thus can produce economic weakness, which may culminate in economic recession and reduced demand for money and credit as real incomes decline. At such times the Federal Reserve's efforts to maintain nonborrowed reserve growth contributes to the fall in short-term interest rates. Reductions in the discount rate may be used to accelerate the process. When a recession is under way, the yield curve becomes sharply upward sloping because of the fall in short-term rates. How far long-term rates will fall depends upon market assessments of how deep and long the recession will be and how much progress will be made in reducing the underlying rate of inflation. The greater the progress expected, the larger the decline in long-term rates that should accompany the fall at the short end of the maturity spectrum.

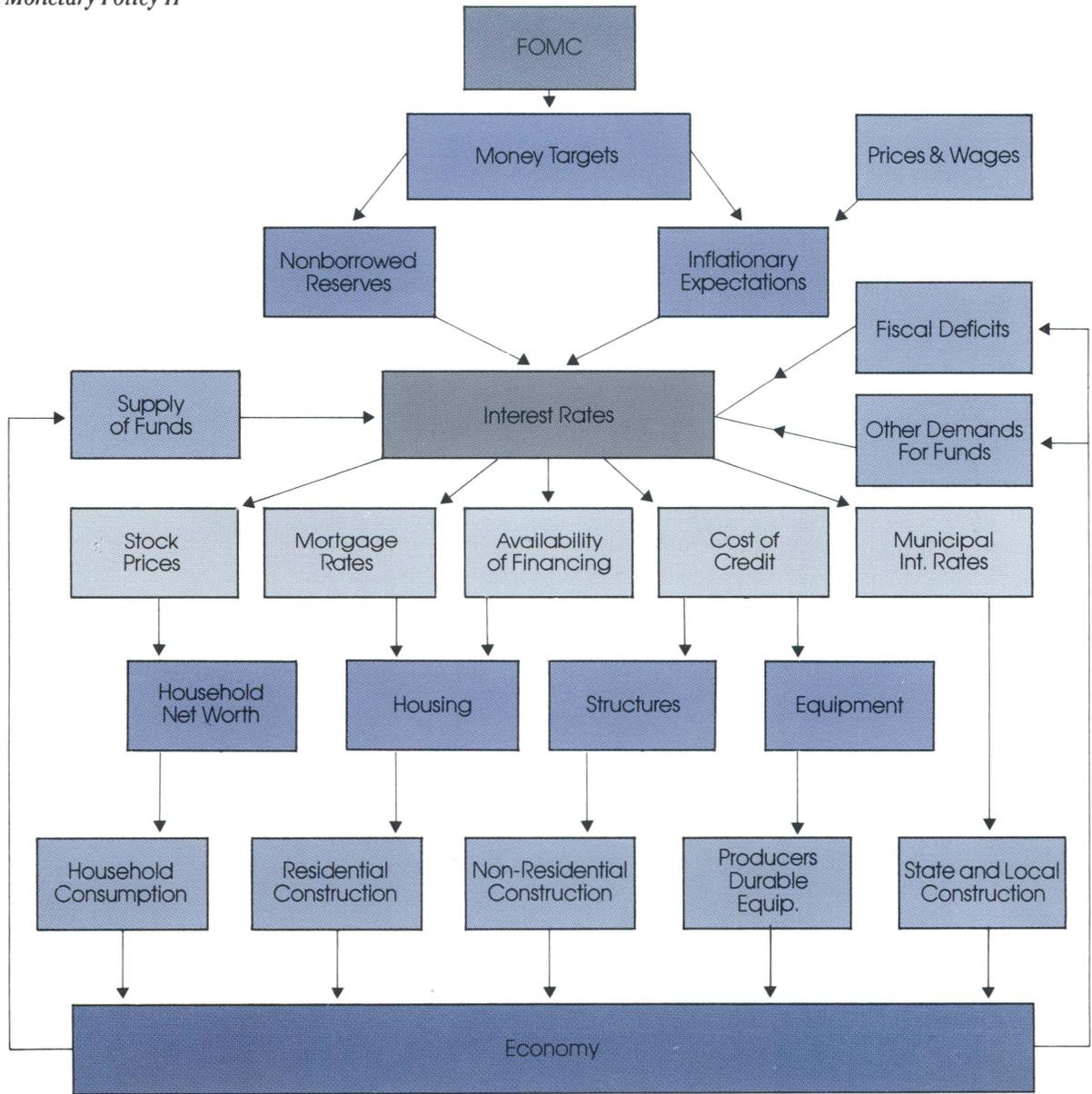
Monetary policy exerts its influence by affecting portfolio and spending decisions in the different sectors of the economy. All economic sectors finance most of their spending from current income, but all rely as well as on raising funds in credit and equity markets to finance part of their activities. By affecting the cost and availability of financing in these markets, monetary policy tries to keep credit-financed spending in balance with the economy's production capacity. It may also affect such decisions directly as well by its effect on expectations (see Chart 20, page 164).

During the buoyant phase of the economic cycle, monetary policy works to restrain credit-financed spending so that pent-up demands can be reactivated when the economy turns sluggish. In the cyclical competition for funds, the business sector gradually bids away resources from consumers and other borrowers as monetary policy seeks to restrain the growth of money and credit. Once economic activity tops out and credit demands shrink, Federal Reserve efforts to maintain monetary and credit growth help re-energize the sectors held back earlier by the credit squeeze.

The net funds raised annually by the nonfinancial sectors are usually equivalent to about one-sixth of GNP. Of the total flow,

*Policy's Effect on the
Economic Sectors*

Chart 20 *Transmission of Monetary Policy II*



households take up almost 40 percent and business about 30 percent. The U.S. government has accounted for 15 to 20 percent of the total. Foreign borrowers and state and local governments account for the remainder. Of the funds advanced, the household sector supplies about two-thirds and the business sector most of the remainder. About four-fifths of household funds are placed with depository institutions or money market funds, while the remainder are invested directly in credit market instruments.

Sectoral credit demands, and their interaction with supply, have a distinct cyclical pattern. As the economy expands, the business sector's need for external financing rises. Increased profitability on expanding volume enables businesses to pay the higher short-term rates generated by the growing economy. At the same time, Federal Government operations ordinarily exert a restraining influence on the demand for credit, since tax receipts rise faster than the economy while recession-related spending declines. Households increase their use of consumer credit as employment and incomes rise. But the ability of families to obtain and carry home mortgages is gradually undermined by the higher interest rates and stiffer eligibility requirements resulting from economic expansion. State and local governments, too, find it somewhat harder to finance the construction of long-lived projects providing public services. With the onset of a recession, private credit demands and interest rates usually fall. Funds become available to the Federal Government to cover enlarged deficits while increased credit availability at lower rates helps maintain private spending and generate recovery.

Monetary policy's cumulative impact on the household sector, and thereby on the economy, is pervasive and substantial. The cost and availability of credit influence households in their choice between consumption and savings, while interest rate changes affect consumer wealth in ways that tend to restrain spending as an expansion continues and revive it when recovery begins. Consumer investment in housing and consumer durables is subject to similar influences. The more sustained the expansion, and the rise in interest rates, the more postponable spending is deferred to be reactivated when other sectors' economic demands subside.

Changes in interest rates affect household spending in a number of ways. One might expect a rise in short-term interest rates to encourage households to save more and spend less, and

1. The Household Sector

a fall in rates to have the opposite effect. In fact, such influences, if they exist, are difficult to disentangle from the stronger effects generated by the business cycle. Cyclical changes in interest rates and the behavior of money itself, may influence the expectations and spending plans of households. Consumers do have considerable experience with the cyclical rise and fall in interest rates, while the proposition that rapid money growth leads to inflation is also widely understood. A sharp rise in interest rates may suggest that greater economic uncertainty and rising unemployment lie ahead, leading to greater consumer caution. On the other hand, if a rapid rise in money growth develops, consumers may also expect inflation to accelerate, and as a result tend to reduce saving and borrow in order to increase spending. In recessions, a sharp fall in rates and a rise in money supply could lead to expectations of economic recovery and increased consumer spending. But at other times the actuality of persisting unemployment may tend to delay such a response.

Financial market developments influence household spending decisions by affecting household wealth. In times of rising interest rates, short-term instruments become increasingly attractive alternatives to investments in stocks and bonds. The value of existing bond holdings declines when long-term interest rates rise; corporate stock prices, and hence the value of stock portfolios, are also adversely affected. Rising mortgage interest rates reduce the attractiveness of refinancing existing homes to provide additional resources for spending. Households may also feel less wealthy when homes become harder to sell or the prices of existing houses actually decline. Through a number of channels, then, rising interest rates affect household wealth adversely, tending to restrain consumer expenditures. Declines in interest rates in recession work in the opposite direction, raising the value of real and financial household assets and encouraging spending.

Household investment in housing is particularly sensitive to the cost and availability of credit. Whenever short-term interest rates rise, increased institutional reliance on money market certificates and similar sources of funds leads to a rapid rise in the costs of mortgage lenders. Mortgage rates rise accordingly. Moreover, thrift institutions tend to curtail mortgage lending for prudential reasons when their short-term interest costs exceed the average earning rate embedded in the portfolio acquired in earlier years. They tend instead to place a sizable part of the high cost, short-term money they attract in money market instru-

ments offering an interest rate pickup over cost.

In this environment many prospective home buyers find themselves squeezed out of the market. Initial downpayment requirements and monthly carrying costs increase significantly. The reduction in single-family housing starts can be dramatic, with peak-to-trough declines of 40 percent or more. Substantial resources are released by such a decline, since residential construction typically accounts for more than one-quarter of private fixed investment. Conversely, when a recession occurs and interest rates fall, the activation of deferred demand can be a powerful force contributing to economic recovery.

Monetary policy also influences household spending over the business cycle by affecting consumer credit. Consumers depend heavily on such credit, especially for purchases of automobiles and other durable consumer goods. Historically, their use of such credit has not been very sensitive to the level of interest rates charged. However, the rise of short-term interest rates does squeeze the profit margins of lenders when maximum lending rates are fixed by state usury laws. Banks and consumer finance companies often reduce advertising and tighten up lending standards to reduce loss exposure. In periods of easing interest rates, the widening of gross profit margins tends to encourage greater credit availability. To the extent that usury ceilings are relaxed, consumer credit rates in the future may become more variable than in the past. Consumer use of such financing may then become more sensitive to interest rates.

Monetary policy exerts much of its force by affecting business decisions on inventories and new investments. Corporate and small businesses produce most of the goods and services consumed by the other sectors. They must anticipate and respond to the demands of consumers, other businesses, governmental units and foreign buyers.

Businesses depend heavily on the credit markets to finance the inventories and productive capacity needed to meet customer demands. Their cash flow from retained earnings and depreciation allowances provides only about three-fifths of the funds used for capital spending, for extending trade credit, and for acquiring other financial assets. The remainder comes chiefly from borrowing in the credit markets. Moreover, business credit demand typically grows more rapidly than the economic in the expansive phase of the business cycle. If businessmen expect

2. The Business Sector

strong sales, they try to keep inventories growing ahead of demand so that sales are not lost because of shortages. Similarly, expectations of strong demand lend greater urgency to plans for additional capacity, which may require several years to accomplish. The longer an expansion continues, the greater are the needs of business for external financing.

As short-term interest rates rise, businessmen have to weigh the increasing cost of financing inventories against the possible sales gain from having ample supplies. Price expectations also enter their calculations. Business buying of raw material and other inputs, and planned levels of finished inventories, are apt to increase if inflation is expected to accelerate. Expectations can then become self-fulfilling. Monetary policy has to allow short-term interest rates to rise rapidly enough during expansions to make inventory building an increasingly costly strategy. Businessmen respond by keeping inventories under tight control. At the same time, rising rates sap the buoyancy of household demand through the channels already noted. Business profitability begins to suffer both from high borrowing costs and a softening of demand. At some point inventories become heavy in relation to sales, requiring a reduction in current production to bring them back in line.

Growing business credit demand tends to accentuate the rise in short-term rates during economic expansions. Capital spending appropriations rise as existing capacity is used more efficiently and as margins of excess capacity decline. External financing needs rise substantially because inventory and investment spending outstrip the cash flow generated by current sales. A large part of this financing is short-term in character either because it relates to inventories or because businesses postpone long-term borrowing in hopes of doing it later at lower interest rates. The effect is to add to the upward pressure on short-term rates.

As an expansion continues, the rise in rates undermines business profitability, especially for those companies that are heavily dependent on credit. Managers, encountering sustained pressure on profit margins, step up their efforts to cut costs. Among heavy credit users, a review of capital spending may produce some trimming, or stretching out, of present plans — especially if there is lender resistance to providing additional financing. The rise in long-term rates may itself reduce the attractiveness of projects under consideration by increasing the rate at which projected

income streams are discounted in the process of evaluating their merits. However, well-capitalized firms are less likely to retrench significantly on projects already under way, given the time necessary to complete major additions and the extra costs involved in delay. Aggregate capital spending tends to be sustained well into a recession, diminishing only as the rising margin of capacity available reduces the desirability of further additions.

One feature of the cyclical process in a market economy is that business investment for meeting future customer demand gradually undermines the strength of current consumption, even in a balanced expansion. Business wins the competition for funds and for real resources, but its success in the financial markets undermines production and income in rate-sensitive sectors. Consumer demand falls at some point below the pace assumed in current production schedules, so that unwanted inventories accumulate. High interest rates, which were tolerable as long as sales were rising, force a reduction of production schedules so that sales can be met from existing stocks. As production cuts spread and workers are laid off, the general belt tightening prolongs the inventory correction.

When businessmen cut inventories, they repay short-term loans, contributing importantly to a reduction in credit demands. Interest rates fall, sometimes dramatically, as the Federal Reserve maintains the provision of reserves to the banking system. As noted earlier, this works to increase the flow of credit to housing and other areas that were squeezed during the expansion. The stage is gradually set for the end of the inventory runoff, and the restoration of production to the levels needed to meet current sales.

Most units of government below the Federal level operate essentially on the basis of balancing current spending with receipts from taxes or grants-in-aid from a higher level of government. Annual budgets may include capital spending for a wide variety of projects. But major capital outlays on schools, roads, sewers and the like usually depend on long-term financing, which is often authorized separately by public referenda. General obligations of governmental issuers are secured by the taxes that can be levied on taxpayers, and enjoy exemption from Federal income taxation. The current expense budget of the issuing body usually provides for interest and authorization charges on such projects. States, in particular, have also established separate

3. State and Local Governments

corporations to run business-like enterprises, which charge for the services they render through bridges and turnpikes, utilities, mortgage lending, and other operations. The capital spending of such corporations is usually financed by revenue bonds, which are secured by the stream of revenues expected from the facilities they finance.

Monetary policy's direct impact on governmental units takes place chiefly through credit market effects on capital spending. A general rise in interest rates increases the rates which governmental units have to pay on their bonds. At the margin this tends to lead to some reduction in, or postponement of, capital spending programs. Some issuers may also be unable to borrow because rates rise above ceilings established by state law on what they can pay. The volume of tax-exempt offerings in the long debt market usually declines in boom periods. The direct effects on spending are likely to be modest. Debt financing by such governments is usually only 5 to 6 percent of their total expenditures, so that reducing their capital outlays slightly does not involve much cutback in total spending.

Spending of state and local governments is affected much more by the current state of the economy itself. Revenues grow with the economy, often more than proportionally because of progressivity in income taxes. A climate of expanding revenues often leads to new spending initiatives. Conversely, disappointing revenues in times of recession often lead fairly quickly to a need to economize because of the need for balancing income and outgo.

4. *The U.S. Government*

Monetary policy's impact on Federal spending and revenue decisions is also limited. The changes in interest rates that accompany economic expansion and recession do affect the interest cost of financing the outstanding debt. The budgetary impact can be sizable since about one third of the debt has to be refinanced each year at prevailing interest rate levels. But changes in Treasury interest costs over the cycle appear to have influenced Federal fiscal policy only marginally.

The Treasury is, however, a major independent force in financial markets, competing with other borrowers for funds and command over real resources. Federal credit demands over the cycle tend to run counter to those of other borrowers. As the economy expands, income taxes grow more rapidly than the economy, assuming unchanged income tax rates; they also exert a

restraining influence on the rise in consumer income. Conversely, borrowing needs expand in recessions when revenues fall at a time of increased spending on unemployment compensation and other income-sustaining programs. This increase in Treasury financing typically coincides with a high level of savings and a subsidence of credit demands from other sectors. This contra-cyclical borrowing pattern corresponds reasonably closely to fiscal policy's built-in stabilization of final demand. Accommodating Treasury requirements ordinarily leaves room for other borrowers in periods of economic slack.

Financial market participants are concerned about whether the Treasury can always satisfy its needs without adversely affecting the flow of funds to others. The rise of government deficits in relation to GNP in the late 1970's from a decade earlier suggested to some that the Treasury's demands could prove excessive in relation to the rates of money and credit growth planned by the Federal Reserve. In this view, Treasury and private demands during an expansion could drive up interest rates rather quickly, perhaps causing the economy to stall out well before production had reached its noninflationary potential. In both early 1980 and again in the summer of 1981, financial market fears about the scale of future budget deficits caused long-term interest rates to rise sharply and helped bring on subsequent economic downturns. In this manner expectations concerning fiscal policy and previously announced monetary objectives can produce significant effects. Such expectations may also feed back into the fiscal policy process, exerting a measure of discipline over the extent to which the government can sustain policies that appear likely to place unduly heavy demands on the credit markets.

The effect of U.S. monetary policy on the credit markets is not national, but international. The leverage exerted affects the balance between global monetary demand and the availability of real resources. The prices set in the market for internationally traded commodities feed back to the U.S. economy, as do the income effects generated by the financial flows set in motion by U.S. monetary policy. Policymakers around the world are dealing collectively with a closed economy.

U. S. monetary policy impinges first on the international money market. The core of that market is the extraterritorial banking system that has grown up during the last two decades,

The International Dimension

as national banks have escaped the costs and restrictions imposed by national banking authorities. This Eurobanking system accepts deposits of all maturities in what is basically a wholesale market. Because of the absence of reserve requirements, insurance fees and state taxes, its constituent banks have the signal advantage of being able to pay higher rates to depositors through their extranational branches and subsidiaries than they could pay at home. Deposits are taken in all major currencies, but the dollar component of the market is by far the largest. The foreign exchange markets link the deposit markets in the various currencies. Interest rates in those markets relate closely to those prevailing in the home money market of the relevant currency. Arbitrage usually keeps the relationship between spot and forward exchange transactions close to the interest-rate differentials prevailing in the respective deposit markets.

As befits a wholesale money market, the constituent banks have developed a loan mechanism that places funds on a large scale on terms that protect the banks from most of the interest rate risk. Loans are made in large size for four to 12 years to major governmental and corporate borrowers through loan syndications among the banks. Such loans are usually priced at a markup over the cost of 6-month deposits to the banks. The markup and front-end fees constitute the banks' primary source of earnings and their protection against credit risk.

The Eurobond market complements this Eurobanking system. In it, banks and investment bankers underwrite 5 to 10-year loans for top quality corporate and sovereign borrowers. They place them largely with individual and institutional clients, in part because there is usually no withholding of income tax from the interest earned. Eurobond flotations thus involve retail placement, and underwriting costs of such issues usually exceed those paid in the New York market for foreign bonds. The Euromarkets together constitute a very large and efficient mechanism for collecting funds internationally and redistributing them to borrowers, chiefly for an intermediate maturity. A feature of the system is that two-thirds or more of the credit volume goes to instrumentalities of sovereign governments. The lending capacity of the system grew so rapidly in the 1970's that it played a major role in rechanneling OPEC surpluses to oil-importing nations.

The explosive growth of the system's credit to sovereign governments also contributed importantly to the emergence of excessive demand and inflationary pressures during the decade. The ready availability of credit enabled major countries in the industrial and developing world to escape for a time restrictive domestic economic policies, which would otherwise have been forced by balance-of-payments developments or recourse to the International Monetary Fund. Prudential concern by banks and their supervisory authorities emerged with considerable force once individual countries experienced difficulties in meeting their obligations. That and the expansion of the IMF's credit facilities, with attendant concern about domestic policies, appear to be reducing somewhat the system's potential for spurring international monetary expansion.

As expansion continues, banks in the U.S. gradually shift from being net lenders to net takers of funds from the Euromarket in order to meet domestic credit demand. To some extent bidding for more dollars abroad may reflect some recycling of domestic deposits through the Euromarkets.¹

1. U.S. Economic Expansion

When monetary policy is restrictive and short-term rates rise above long-term rates, the U.S. economy is likely to draw funds from the rest of the world. The Euromarket may still be expanding because of its competitive advantage with other national markets at the higher rate levels. Its pulling power then exerts a restrictive influence on credit availability in other countries. The rise in U.S. short-term rates also means a proportional rise in debt service of those countries that have large amounts of outstanding Eurocredits. Hence, the borrowing needed to maintain their domestic growth increases accordingly. The result tends to be a widening of the markup they must pay on new loans, and strong pressure to scale back plans for their own domestic growth.

When U.S. short-term rates rise sharply, the dollar tends to appreciate. The extent of the dollar's appreciation will be influenced by how high U.S. interest rates rise in relation to domestic

¹The competitive advantage of Eurobanks increases as rates rise since the yield equivalent of a given reserve requirement increases with the rate level. For example, if the domestic requirement on CDs were 5 percent, the London branch of a U.S. bank could pay 50 basis points more than the head office when the rate level was 10 percent. At a 20 percent rate level, it could offer 100 basis points more on the same maturity.

inflation, and by the credibility of U.S. actions to reduce inflation. It also depends on how much the U.S. current account is expected to deteriorate. The appreciation of the dollar will perforce tend to reduce demand for U.S. exports at the same time that imports are expanding. Concerns about political or military developments abroad may also contribute to capital inflows and the dollar's strength.

When the dollar appreciates, foreign governments in the major industrial countries have to weigh the long-term benefit to their export sectors against the immediate increase in the real costs of energy and other imports, which work in the opposite direction. An important consideration is how rapidly any increase in import prices is likely to be translated into rising wages — in other words, how fast the competitive gains of their currency's depreciation will be eroded.

A country's choice of when, and how much, to intervene in the exchange markets to keep its currency from depreciating depends on the state of its domestic economy and balance of payments, as well as on its international creditworthiness and reserve position. In most other countries, the export sector looms larger in the national economy than is true in the United States and governments have to consider how well placed their industries are to benefit from an improved competitive position. Import prices also feed through more quickly and have a greater effect on the domestic price level. The greater deterioration of an exchange rate against the dollar, the more likely an industrial country's central bank is to support its currency. To do so, it can draw on exchange reserves, or international credits.

When intervening, a central bank must also decide whether to permit the sales of dollar assets to drain reserves from the domestic banking system, or whether to use other measures to maintain domestic monetary conditions as before. The more inflation is deemed a long-term domestic danger, the more apt the central bank is to allow a tightening of bank reserve positions. The central bank can maintain a degree of insulation from the forces the Federal Reserve's policy has set in motion — perhaps for a somewhat longer time if it has reasonably effective controls over its banking system's access to the international money market. But there is little doubt that the longer U.S. interest rates remain high as the Federal Reserve pursues its monetary objectives, the more powerful are the restrictive effects likely to be on foreign economies.

When the U.S. economy weakens and short-term interest rates fall, Eurodollar rates decline immediately. Banks resident in this country typically change from being net takers of Eurodollars to being net placers as domestic business credit demands decline. This reversal typically enhances the ability of the Euromarkets to make loans for balance-of-payments and other purposes, and thereby tends to foster a higher level of economic activity abroad than might otherwise prevail.

The decline in U.S. and Eurodollar short-term rates also tends to depress the U.S. dollar in relation to foreign currencies. Funds tend to flow away from dollar investments, putting downward pressure on the spot dollar exchange rate until the spread from the 3-month forward rate equals the new interest rate differential between the two currencies. The extent and duration of a decline in the dollar exchange rate depend in part upon how rapidly market participants expect the U.S. balance of payments to improve. In a recession U.S. imports fall with domestic income while exports tend to be maintained or increase. The decline in the dollar exchange rate tends to improve the competitive position of United States exporters; this feeds back with a lag to the demand for U.S. exports, assisting economic recovery.

Foreign governments may be of two minds when the dollar depreciates in such circumstances. They may not welcome the erosion it brings in the competitive position of their own industries, but welcome the decline in real costs to their economies of oil and other goods, priced in dollars. In practice, the more the dollar declines, the more likely foreign central banks are to intervene to acquire dollars and stem the appreciation of their own currencies. One effect of this can be an increase in bank reserve growth in the country intervening with attendant expansive monetary effects there. The resultant stimulus to economic activity abroad may help spur U.S. exports and sustain U.S. activity in the near-term. The improved U.S. competitiveness works in the same direction but typically develops over a longer time period. The central bank, can, of course, raise reserve requirements or take other steps to counter the addition to reserves. In practice, since domestic borrowers can often borrow from the Euromarkets, many countries find it difficult to insulate their domestic economies completely from the effects of U.S. policy. (Foreign economic policies likewise affect international financial markets and the U.S. economy.)

The feedback to the U.S. economy from the external impact of

monetary policy is difficult to quantify, but is doubtless significant. The U.S. export sector accounts for about one-eighth of domestic output and exceeds nonresidential investment in plant and equipment in quantitative importance. Moreover, in recent years nominal exports have grown almost twice as fast as the whole economy. Policymakers need to allow for the impact on domestic demand of the international effects of their own policies. The lags involved may, in fact, be analogous to those experienced with business capital spending in the domestic economy.

The monetary and other economic policies of the United States and its chief trading partners are not made in a vacuum. Federal Reserve policymakers need to appraise the balance between monetary demand and effective world production capacity when they chart domestic policy. Policymakers abroad are even more sensitive to that balance since external demand is relatively more important to their economies. U.S. policymakers find it difficult enough to project the behavior of domestic activity, which contributes so importantly to the way the world economy performs. The dynamics of the larger economy, and the lagged feedback of monetary policy's global thrust to domestic developments, add to the uncertainties of projecting economic behavior. In all nations, but perhaps in the U.S. more than most, policymakers tend to focus on the home economy and the levers they can move, as though their actions had little effect on the world economy. Still, central bankers, operating in domestic markets, generate changes in rate relationships and financial flows that spread to the international money market. Collectively, they are making monetary policy for the world.

Monetary policy moved to center stage in the industrial, as well as the developing, countries in the 1970s, as inflation disrupted the existing economic structure and threatened social cohesion. During the decade central banks found it perplexing and difficult to counter the forces producing inflation, and often found monetary and credit growth exceeding their desires. As the 1980s began, governments, beset by popular dissatisfaction with inflation, found it politic to rely more heavily on monetary policy to constrain aggregate demand, while the political process mediated the more insistent claims within society.

Whether inflation could have been avoided in the 1970s is open to question. The rapid growth of money during much of the decade helped disguise the substantial real tax imposed by the rise in oil prices on a consuming public accustomed to regular increases in real income. Governments responded to the initial shock with expanded budget deficits to maintain employment and social stability. Monetary policy accommodated much of the resultant increase in global credit demands. Societies slowly regrouped through the political process, modifying the rigidities imposed by rising expectations, wage bargaining procedures, and a technology and production capacity geared to lower energy prices. Money illusion provided time for the social fabric to stretch with considerable discomfort, but generally without breaking.

The emergence of inflation as a major social issue greatly increased public support for bringing monetary policy to bear effectively on reducing the rate at which prices were increasing. The control of monetary growth became the natural focus of attention, given the well-documented relation between monetary expansion and inflation. As discussed in Chapter 2, U.S. monetary policy progressed during a decade from Federal Reserve preoccupation with money and credit growth over a few months to a law mandating annual growth objectives. With inflation a worldwide phenomenon, governments in other industrial countries also accepted monetary targeting as indispensable to a credible program for lowering the inflation rate. Monetary targeting helped central banks themselves win public support for anti-inflationary policies, and relief from the conventional interest rate constraints developed in less inflationary times.

Operating strategies had to adjust to the higher priority assigned to monetary targets. In the United States the money mar-

ket strategy of monetary control, used with considerable success earlier, proved inadequate. Policymakers were unable to break through the interest rate modalities of past experience with the speed and vigor required. The adoption of reserve-oriented operating procedures in October 1979 sought to restore credibility to the central bank's long-term strategy for containing, and then reducing, inflationary pressures. Self-imposed rules gave the public assurance that open market operations would generate automatic resistance to monetary overruns while continuing to provide flexibly for the economy's cash requirements. Central bank inertia would no longer lead to cumulative slippage in the struggle to contain inflation.

The adoption of new rules did not change the need for judgment, but did encourage its use. Once the pattern of creeping marginal adjustments in the Federal funds rate was abandoned, the Federal Reserve employed discount rate changes and reserve-oriented open market operations forcefully to affect portfolio decisions. The central bank impressed the financial markets with its determination to keep abreast, or ahead, of the inflationary expectations at work in the markets. U.S. monetary policy became more credible in pursuing its announced goals, enhancing the force brought to bear on inflationary expectations and the economy. The prospects of damping inflation and the amplitude of cyclical swings in interest rates over the years ahead improved significantly.

Central bankers do not operate in a vacuum. Financial market participants always look through the monetary veil to see what demands the several sectors are making on the real resources of the economy. The size of the Treasury's demands, in particular, are always a major concern, given the historical evidence that the sovereign's political decisions precede the monetization of the public debt. Central banks often have difficulty resisting the impetus governmental decisions can give to expectations and real demands on productive capacity. Except when national survival seems at stake, central bankers traditionally argue within government for moderating the government's net demands on financial markets and the economy.

The Federal Reserve's present policymaking structure and operational procedures will continue to change as the financial system adapts to meet changing social needs and priorities. The new operating procedures themselves are a matter of current

debate. Views diverge over how effective the new procedures have proved in controlling monetary growth and what lines of further development appear most promising. Many of the monetarist persuasion worry that monetary growth rates still vary too much from quarter to quarter, fearing the public will lose confidence in the Federal Reserve's ability to achieve its annual objectives. Another view, concerned about the adverse effect of interest rate variability on exchange rates and the cost of capital, would see merit in reducing short-run rate volatility while continuing reserve targeting.

One school of thought believes that operating procedures, reserve periods and the discount window should be reformed in the interest of controlling money over much shorter time intervals than the annual periods now mandated by law. Some analysts believe that the monthly and quarterly variations in money growth experienced since October 1979 engender uncertainty about the course of monetary policy and the economy. Those holding this view would redesign operating procedures and institutional arrangements substantially in hopes of reducing the variation of money growth around its stated objectives. Greater week-to-week volatility in short-term interest rates would be acceptable to proponents of this approach, although they tend to believe others overstate the risks on this score. They believe any resultant costs would be more than outweighed by the greater certainty that annual money growth objectives would be achieved.

Others give a different reading to the experience to date. To many Federal Reserve and market observers familiar with the short-run behavior of money, its variability seems more the result of the changing demands of a complex, and rapidly changing, economy than of the Federal Reserve's procedures. They see the present procedures as a reasonable approach to screening out the noise in weekly and even monthly data. In this view, trying to control money or credit more tightly than at present would be likely to result in greater volatility in both short and long-term interest rates, greater uncertainty among decision makers, and higher costs for capital and for foreign trade. Proponents of this view would opt for steps to reduce day-to-day and week-to-week changes in interest rates, even at the cost of somewhat greater short-run variability in money growth rates.

The issue is one of system design. A system that accommodates monetary noise will involve a brief lag whenever a sustained

and cumulative deviation begins. Conversely, one that treats weekly deviations as significant is likely to generate a great deal more noise in short-term interest rates than has yet been experienced. Many economists and market participants are skeptical that greater variability in rates can improve monetary control, or policy's influence over the economy's performance. In this view changes in procedures should be in the direction of reducing the interest rate uncertainties within which the trading desk, market participants and the public must work.

A more fundamental question is whether financial innovation, the product of regulatory reform and double-digit inflation, is not undermining the legitimacy, and feasibility, of monetary targeting. The demand for a narrow aggregate like M1 may continue to allow reasonable control since it responds to the differential between the low return it affords the holder and money market interest rates. But the economic rationale for M1's use may become increasingly attenuated as it shrinks relative to GNP and the relationship between the two becomes harder to predict. Demand for M2 and M3, on the other hand, may prove less responsive to interest rate differentials in the 1980s than heretofore, as they become increasingly dominated by components bearing market-related rates. These developments could push monetary policymaking eventually toward targeting nominal GNP and allowable inflation, and away from the use of monetary objectives. For the present, however difficult the annual selection of these objectives may be, they remain very useful for communicating basic policy objectives to the public and providing a standard for judging the appropriateness of Federal Reserve actions.

To foreign central bankers, there has been something unreal about the preoccupation of the Federal Reserve and U.S. economists with weekly money supply data. Few countries can match the regularity and accuracy of the Federal Reserve's information on key economic variables. Other major central banks that have set themselves monetary objectives often rely on monthly reports of money supply and bank credit. Often, two or three months may pass before they feel sufficiently sure of developing trends to take action. To be sure, a few have chosen a reserve measure as their annual target, but none has yet attempted any approach as automatically geared to operating reserve targets as that adopted by the Federal Reserve. The short-run variability of the money supply in the principal industrial countries continues to exceed that in the United States, but that

is much less a matter of discussion or concern abroad than in the U.S. Foreign central banks remain unsettled by the volatility of U.S. interest rates and the resultant vibrations in credit and foreign exchange markets.

Whatever international coordination of monetary policy there is, functions primarily through maintaining a flow of information among national participants, who remain responsible for the deployment of individual national strategies. The monthly meetings of central bankers at the Bank for International Settlements in Basle provide a very useful forum for such exchanges. The regular meetings of committees of the Organization for Economic Cooperation and Development also provide member governments with opportunities to elucidate and defend their own economic policies, and comment on those of others. Periodic summit meetings among the major industrial powers have sought to achieve some degree of harmony in their approach to world economic issues, with rather mixed results. The annual meetings of the international Monetary Fund — and the more frequent sessions of working groups within it — provide still another mechanism for discussing world problems and institutional changes that may improve the international monetary system.

The sustained pursuit of annual monetary objectives by leading countries seems very likely to affect world monetary and financial developments during the next decade. If the United States succeeds in reducing monetary growth rates, a success that depends significantly on fiscal policy, the monetary climate should be notably less expansive in the 1980s than during the previous decade. Policy's thrust, carried through the international money and foreign exchange markets, also would condition the policies of other countries in the same direction. Such a development could work to improve the balance between demand and resources over the near-term, establishing conditions conducive to sustained economic development. Many countries could also find external financing less readily available on acceptable terms, holding their economic performance below their perceived need to grow. Political pressures to expand the funds available from the IMF, reduce the conditionality of lending, and lower the interest costs of borrowing seem likely to be continuing prospects for the 1980s. Monetary policy always must be rooted in the political process, and the IMF clearly embraces the body politic appropriate to the 1980s and beyond: the world itself.

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