Chapter 2

The Federal Reserve and U.S. Monetary Policy: A Short History

The tools that the Federal Reserve uses today and its approach to formulating and implementing monetary policy have evolved considerably from what the framers of the Federal Reserve Act had in mind in 1913. The economic consequences of two world wars, the Great Depression, and the inflation of the 1970s have contributed to significant changes in Federal Reserve policy priorities and in the techniques and tools used to pursue them. A System that was decentralized at the outset has become much less so; the goals of price and economic stabilization now figure importantly in the Federal Reserve's objectives for monetary policy; and open market operations, a procedure not even mentioned in 1913, has become the primary tool of policy. This account focuses on the changing views of the Federal Reserve's primary monetary policy responsibilities and on the discovery and development of policy guidelines and tools. It should provide some understanding of the roots of the current policy process, the focus of much of the book.[1]

The Federal Reserve's Beginnings and World War I: 1914 to 1920

The Federal Reserve System was created against a background of long-standing distrust in centralized power and of central banks in particular. In the 19th century, the United States had twice established central banks to stabilize the banking system through reserve and currency management activities. However, the charters of the First Bank of the United States (1791-1811) and the Second Bank of the United States (1816-32) were not renewed by Congress upon expiration, primarily because of political distrust of the eastern financial establishment and a desire by western farmers for inexpensive credit.[2]

From 1846 until the establishment of the Federal Reserve in 1914, reserve management was effected through a "national banking system." Under this system, "country banks" were required to hold reserves at larger banks as well as in the form of cash. "Reserve city banks" were required to hold reserves in cash and as deposits in "central reserve city banks." Central reserve city banks were required to hold their reserves in cash. The Treasury Department altered reserve levels by adding or draining funds that it kept on deposit at central reserve city banks. The large city banks were unable to respond adequately to seasonal and cyclical variations in the cash and credit requirements of the economy. The years were marked by periodic financial crises that were resolved primarily through emergency actions of private bankers.[3]

In 1907, a banking panic was brought under control through extraordinary actions by a group of commercial banks, led by J. Pierpont Morgan.[4] The panic inspired considerable interest in developing a better system to deal with future crises. A series of congressional studies, hearings, and proposals culminated in the passage of the Federal Reserve Act in December 1913.[5]

The system created by the act consisted of the Federal Reserve Board in Washington, D.C. and twelve regional Federal Reserve Banks with main offices and branches to serve the entire country. The Federal Reserve System was directed, in the words of the preamble to the Federal Reserve Act, "to furnish an elastic currency, to afford the means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes." It was anticipated that credit extended by the Federal Reserve Banks to commercial banks would rise and fall with seasonal and longer term variations in business activity, thus providing a self-adjusting mechanism that would prevent shortages of currency or runs on banks from leading to financial panic and a breakdown in the economy. The framers

did not worry about the inflationary potential of such accommodative credit provision, because long experience with the gold standard had led them to expect that gold flows would limit inflationary or deflationary tendencies.

From the beginning, the Federal Reserve was reasonably successful in accommodating the seasonal swings in the demand for currency—in the terminology of the act, providing for "an elastic currency." It thereby alleviated some of the troublesome strains on the commercial banks that arose from the cyclical pattern of credit demands in agriculture and from the year-end rise in currency demand. Interest rates no longer exhibited seasonal fluctuations to the degree that they had earlier.[6] Other aspects of the System's mandate developed more slowly and were subject to experimentation and controversy.

The act established a decentralized system. The regional Reserve Banks were to have considerable authority to set the terms for credit provision in response to local developments and to regulate member banks in their districts. The Board in Washington was assigned responsibility for overseeing the activities of the Reserve Banks. The Board consisted of a governor and four other regular members, with the Secretary of the Treasury and the Comptroller of the Currency designated as ex officio members. The twelve regional banks were headed by governors, most of whom had been commercial bankers.

Between the outbreak of World War I in 1914 and the United States entry into the war in 1917, gold flowed into the country from Europe to purchase goods needed for the war effort. The Federal Reserve found that it did not have the tools to offset the inflationary impact of the inflows. Nor did it have the power to raise reserve requirements; indeed, the Federal Reserve Act mandated reductions in reserve requirements for several years while reserve balances were being consolidated at the Federal Reserve rather than scattered among the large commercial banks. The Reserve Banks did not yet have many securities, so they could not absorb liquidity through securities sales. (Table 1 shows the history of the Federal Reserve portfolio from 1914 through 1950. The early years' figures are overstated because repurchase agreements in bankers' acceptances [BAs] are included with outright holdings.) Indeed, only minimal amounts of Treasury debt were outstanding, most of it backing national bank notes. At the end of 1916, the total interest-bearing Treasury debt was just under $1 billion, consisting mostly of relatively long-term securities.

In that period, the only tool potentially available to offset the reserves provided by gold inflows was the discount window. Discount rates (or rediscount rates as they were then called)—the rates at which the Reserve Banks made loans to the member banks by discounting eligible paper—could

Table 1. **Federal Reserve Holdings, 1914-50 (Pre-Treasury–Federal Reserve Accord)**
Millions of U.S. Dollars

Year-End	Treasury Bills	Treasury Certificates	Treasury Notes	Treasury Bonds	Total Treasury Securities[a]	Bankers' Acceptances	Total Holdings[a]	Annual Growth Rate (Percent)
1914	0.0	0.0	0.0	0.5	0.5	N/A	0.5	
1915	0.0	0.0	0.0	16.0	16.0	64.8	80.8	3,100.0
1916	0.0	0.0	11.0	44.0	55.0	121.2	176.2	243.8
1917	0.0	43.0	27.0	52.0	122.0	266.9	388.9	121.8
1918	0.0	201.0	9.0	28.0	238.0	285.3	523.3	95.1
1919	0.0	273.2	0.5	26.8	300.5	71.6	372.1	26.3
1920	0.0	260.6	0.5	26.3	287.4	187.2	474.6	-4.4
1921	0.0	183.5	17.6	33.0	234.1	145.0	379.1	-18.5
1922	0.0	226.5	178.6	28.3	433.4	271.0	704.4	85.1
1923	0.0	17.1	87.0	29.5	133.6	352.0	485.6	-69.2
1924	0.0	115.5	349.4	75.3	540.2	386.9	927.1	304.3
1925	0.0	126.7	187.1	60.8	374.6	372.2	746.8	-30.7
1926	0.0	179.5	87.3	48.0	314.8	381.0	695.8	-16.0
1927	0.0	232.2	52.2	275.6	560.0	308.9	868.9	77.9
1928	0.0	49.8	95.8	51.6	197.2	437.5	634.7	-64.8
1929	56.3	161.9	199.4	69.7	487.3	235.3	722.6	147.1
1930	24.2	312.6	208.1	141.2	686.1	288.8	974.9	34.9
1931	130.7	270.1	31.5	342.3	774.6	215.3	989.9	1.5
1932	414.6	719.0	296.5	421.0	1,851.1	3.6	1,854.7	87.4
1933	515.8	425.1	1,053.2	441.2	2,435.3	108.1	2,543.4	37.1
1934	527.5	0.0	1,507.1	395.7	2,430.3	0.1	2,430.4	-4.4
1935	573.0	0.0	1,641.6	215.7	2,430.3	0.0	2,430.3	0.0
1936	598.6	0.0	1,341.0	490.6	2,430.2	0.0	2,430.2	0.0
1937	657.5	0.0	1,155.0	751.5	2,564.0	0.5	2,564.5	5.5
1938	566.2	0.0	1,156.9	840.9	2,564.0	0.5	2,564.5	0.0
1939	0.0	0.0	1,133.2	1,351.0	2,484.2	0.0	2,484.2	-3.1
1940	0.0	0.0	899.5	1,284.6	2,184.1	0.0	2,184.1	-12.1
1941	10.4	0.0	777.3	1,466.8	2,254.5	0.0	2,254.5	3.2
1942	1,010.0	1,041.0	1,345.1	2,792.6	6,188.7	0.0	6,188.7	174.5
1943	6,768.3	2,467.3	677.9	1,629.5	11,543.0	0.0	11,543.0	86.5
1944	11,147.9	4,886.6	1,568.2	1,243.4	18,846.1	0.0	18,846.1	63.3
1945	12,831.2	8,364.5	2,119.7	946.9	24,262.3	0.0	24,262.3	28.7
1946	14,745.0	7,496.0	355.3	753.4	23,349.7	0.0	23,349.7	-3.8
1947	11,433.4	6,796.5	1,476.6	2,852.9	22,559.4	0.0	22,559.4	-3.4
1948	5,487.4	6,077.6	790.6	10,977.2	23,332.8	0.0	23,332.8	3.4
1949	4,829.2	6,275.5	562.2	7,217.7	18,884.6	0.0	18,884.6	-19.1
1950	1,244.0	2,334.2	12,526.2	4,620.1	20,724.5	0.0	20,724.5	9.7

Source: Federal Reserve Bank of New York.

Note: Data exclude effects of repurchase agreements, except for bankers' acceptance figures before 1927.

[a] Figures may not sum to totals because of rounding.

have been raised sufficiently to discourage banks from using the facility. The governors did discuss such an approach but did not take that step. While the rates varied considerably, they were left low enough to encourage banks to use the facility to obtain needed reserves. The rates differed among Reserve Banks and according to the type of paper being discounted. Rates were initially established on a decentralized basis that gave each Reserve Bank flexibility to respond to the regional economic climate. By 1917, each Reserve Bank had developed a complicated rate structure that classified eligible paper according to risk and maturity features.[7]

Once the United States entered the war, gold flows almost disappeared. The United States extended massive loans to its allies, eliminating their need to make gold payments to the United States. It also restricted exports of gold. The Federal Reserve had to cope with the large issuance of Treasury debt needed to finance the war effort. The Liberty Loan Acts authorized a series of debt sales up to certain dollar limits.[8] Previously, Congress had approved debt issues individually. The Secretary of the Treasury assigned the responsibility for placing short-term Treasury certificates and redeeming them upon maturity to the Federal Reserve to facilitate the Treasury's financing efforts.

The Secretary of the Treasury insisted that the Federal Reserve hold down interest rates while the Treasury's Liberty Loan issues were being sold. The first certificates of indebtedness were offered at a rate substantially below market rates, reflecting the Treasury's unstated intention to have the Federal Reserve subscribe for the entire issue. The Fed did take most of the issue, but with some reluctance.[9] Criticism of this financing measure was widespread on the grounds that it placed the Federal Reserve's funds "at the disposal of the Secretary of the Treasury for his immediate uses" and could result in destabilization of the banking system.[10] Thereafter, Treasury certificates were offered at competitive rates. To help sell the issues, the Fed made purchases attractive to member banks by allowing preferential rates for the discounting of Treasury securities. Expansion of Federal Reserve credit took the place of gold inflows as a major source of inflationary growth in money and credit.

After the war, the Federal Reserve struggled to sort out how to operate in a climate that had changed greatly. The Treasury had become an important participant in the credit markets. The discount rate was held down to support Treasury finance; deposits expanded and inflation accelerated, prompting an outflow of gold. Federal Reserve officials debated whether penalty discount rates should be established or moral suasion used to discourage banks from extending credit for speculation in commodities. Decisions were deferred, however, until 1920, when the outflow of gold had reached critical proportions, and the combination of currency expansion and gold outflows had reduced the ratio of gold to Federal Reserve notes to a level approaching

the 40 percent legal minimum then in effect. In that year, the Treasury dropped its opposition to higher rates. Higher discount rates reversed the gold outflows but contributed to dramatic declines in money and prices and a short but severe economic contraction.[11]

Adapting to a Changed Environment in the 1920s

The 1920s were marked by ongoing discoveries about the effects of the various monetary policy tools and considerable debate over the role of the Federal Reserve. For much of the decade, banks made heavy use of the discount window. An understanding existed that individual banks should not be continuously in debt to the Federal Reserve, but on any given day about one-third to one-half of them were likely to be borrowing. Large banks were expected to repay their loans within a few days, while smaller banks could borrow for a couple of weeks at a time. Borrowed reserves often met a significant portion of the banks' total reserve requirement.

The discount rates were usually kept modestly above the rate on ninety-day bankers' acceptances and modestly below the rate on four-to-six-month commercial paper. Occasionally, the Fed attempted to discourage use of the discount window for speculative purposes. Multiple rates for discounting different types of paper prevailed through 1921. Small differences among the regional Reserve Banks' discount rates often existed until World War II. Discount rate changes had to be approved by the Board, a requirement that sometimes precipitated disputes between the Board and the Reserve Banks. On average, the discount rates were changed about twice a year.

Federal Reserve thinking was influenced by the so-called real bills doctrine, particularly in Washington, where Board member Adolph Miller was its strongest advocate. This doctrine held that credit used to finance commercial activity should expand and contract in line with the needs of trade. Accordingly, because short-term commercial bills were issued to finance commercial transactions, it was believed that they could not be issued in excessive amounts and could not be inflationary. In contrast, other loans might encourage speculation and thus could be excessive. This reasoning led some to conclude that the Federal Reserve should encourage financing conducted through commercial bills and discourage speculation.[12] Other hypotheses were being developed at the New York Federal Reserve and in academic circles. Inflation, according to these alternative views, arose from excessive credit expansion. Any provisions of Federal Reserve credit, regardless of the original reason for the extension, would stimulate eco-

nomic activity and could potentially lead to inflation.[13]

From its founding, the Federal Reserve had promoted the creation and development of BAs—a form of commercial bill (described in Chapter 4). BAs were believed to be a desirable means of promoting domestic and international trading of goods. Federal Reserve Banks had purchased BAs before 1917 in order to provide earning assets to meet expenses and to encourage the growth of the instrument. The volume of purchases had fallen off after the United States entered the war, when earnings from discount window loans covered expenses. Purchases of BAs were resumed in the 1920s, initially to lift earnings of the Reserve Banks and to help develop a secondary market for these instruments. To this end, Federal Reserve Banks also arranged repurchase agreements against BAs. In accord with the real bills doctrine, many officials did not believe that Federal Reserve purchases of BAs could be inflationary. Purchases of Treasury certificates of indebtedness evoked more concern. Removing Treasury securities from bank portfolios freed funds that could then be used for speculative purposes.

Early in the 1920s, most Federal Reserve officials still regarded open market purchases primarily as a source of revenue rather than as a tool for regulating reserves for the purpose of controlling money and credit. Each Reserve Bank made its own purchases of both Treasury securities and BAs. It soon became apparent that these purchases had an impact on short-term interest rates. Benjamin Strong, the influential governor of the New York Federal Reserve Bank, was one of the first officials to recognize the power of open market operations to affect reserve and credit conditions and, through them, economic activity and prices. He argued that under a system with fractional reserve requirements, increases in bank reserves, whether they came from an inflow of currency to the banks or from Federal Reserve provision, would support a multiple expansion of deposits and credit. Governor Strong wanted to use open market operations to offset undesired changes in gold holdings and to stabilize economic activity.

Beginning in 1920, Governor Strong sought to achieve better coordination of open market operations. He preferred to have all operations on behalf of the System conducted by the New York Federal Reserve, but initially his goal was to coordinate open market operations among the regional Reserve Banks. A series of committees were formed to explore ways to achieve coordination and prevent the Reserve Banks from bidding for securities against each other or the Treasury. Gradually, the policy implications of the operations came to be considered. The efforts to study and coordinate Reserve Bank operations led to the creation of the Open Market Investment Committee (OMIC) in 1923, consisting of the governors of the Federal Reserve Banks in New York, Boston, Philadelphia, Cleveland, and Chicago. None of the various

open market committees during the 1920s had the exclusive power to approve the open market operations of all regional banks either in BAs or in government securities. They did, however, receive reports on purchases and redemptions of maturing issues to guide the choices for System operations. A Trading Desk at the New York Fed carried out operations for the Federal Reserve System as well as for the New York Bank.

During the 1920s, the U.S. Treasury Department believed it had some authority over Federal Reserve operations involving Treasury debt issues. Indeed, in 1922, the Treasury expressed distress at the amount of its securities that had been purchased and asked the Federal Reserve Banks to liquidate their holdings of its debt to avoid inflation. Governor Strong acquiesced to the request for portfolio liquidation because gold inflows to the United States were financing credit expansion. Other governors, concerned that sales of Treasury securities would reduce earnings, agreed only reluctantly. Because of the gold inflows, discount window use (another source of earnings) did not rise as the portfolio declined, and Federal Reserve earnings reached critically low levels. The Treasury then agreed that the Federal Reserve Banks could hold sufficient securities to cover expenses.

The view that open market operations could serve as a countercyclical tool to influence reserve and credit conditions gained adherents as the 1920s progressed.[14] Nonetheless, there were ongoing disputes between those who wanted a procyclical policy based on the demand for credit for commercial transactions (real bills) and those who wanted to make credit readily available when the economy was in a recession and stringent when the economy was growing rapidly. The OMIC, with Treasury approval, began to use open market operations as a countercyclical policy tool during the 1924 recession.

The OMIC gauged whether credit was tight or easy by watching short-term market interest rates and the amount of borrowing from the discount window. A number of analysts observed that open market purchases that did not offset gold outflows encouraged banks to repay discount window credits. By the same token, open market sales encouraged increased borrowing. Some people interpreted this pattern to mean that open market operations had no effect on reserve availability or on a bank's ability to lend. But others, including analysts at the New York Reserve Bank, argued that limitations on prolonged discount window borrowing might make those banks reducing their borrowing feel more comfortable in extending additional loans. Thus, open market purchases would have an expansionary effect. Nonetheless, some analysts who conceded that open market operations and discount rate changes could moderate business cycles questioned the wisdom of countercyclical monetary policy because they feared it might impart an inflationary bias to policy.

During much of the 1920s and 1930s, outright purchases and sales of Treasury securities in the market were the only type of open market operation regularly undertaken at the Federal Reserve's initiative. At its regular meetings, the OMIC generally authorized the New York Fed to undertake outright purchases or sales of Treasury debt instruments for the consolidated System Account in amounts up to a specified level.[15] This "leeway" for portfolio changes was available if needed to achieve the desired credit conditions. Decisions would be made by observing the behavior of borrowed reserves, especially borrowings by the money center banks, and money market conditions, exemplified by the behavior of short-term interest rates and the ease or difficulty encountered by securities dealers in obtaining financing. Operations were conducted with recognized dealers and were negotiated on a case-by-case basis.

Other types of open market operations were generally carried out at the initiative of the banks or dealers and were sometimes referred to as passive open market operations. The Federal Reserve Banks established rates at which they would buy BAs. Through most of the 1920s, the rates were set close to market rates and slightly below the discount rate. If the Federal Reserve Banks were routinely buying more or fewer BAs than the OMIC wanted, the offering rate would be adjusted. Repurchase agreements (RPs) against both Treasury securities and BAs were arranged on behalf of nonbank dealers at the dealers' initiative for periods of up to fifteen days, with early withdrawals permitted. The Federal Reserve recognized that these passive operations affected bank reserves, but because of the operations' temporary nature (the average maturity of BAs purchased was only about fifteen days, and the BAs were redeemed at maturity), they were generally not seen as having policy significance. Instead, the operations were believed to ease temporary credit stringencies faced by dealers when reserves were drained by Treasury cash management operations or some other noncontrolled factor. The Federal Reserve did, on occasion, deliberately absorb reserves through what today would be called matched sale-purchase transactions. When reserves were abundant because Treasury cash positions were abnormally low before tax dates, the Fed sometimes made temporary sales of short-term Treasury certificates of indebtedness bought directly from the Treasury.[16]

During the 1920s, the System's domestic securities portfolio did not grow significantly on balance (Table 1). Federal Reserve officials reportedly preferred to purchase short-term securities.[17] Limited available supplies, however, led the Reserve Banks to purchase a mix of securities that spanned the maturity spectrum. In some years, holdings of certificates of indebtedness did outweigh the longer term portion of the portfolio.

Major Contraction: 1929 to 1933

The absence of consensus concerning either the role or the power of the Federal Reserve to respond to cyclical forces proved to be a severe handicap during the 1929-33 contraction phase of the Great Depression. Economic activity had already begun to weaken at the time of the stock market crash in October 1929, but the Federal Reserve had felt helpless to provide stimulus without also feeding the speculative boom in stock prices. Governor George Harrison, who had assumed leadership of the New York Fed after Governor Strong's death in October 1928, had argued in 1928 for a sharp but short-lived increase in the discount rate, tempered by open market purchases. The Board turned down his requests until August 1929, by which time Governor Harrison felt that it was probably too late. Initially, the Fed tried, with limited success, to use moral suasion to discourage banks from borrowing funds from the discount window to invest in financial instruments. Once it did raise the discount rate, it made only limited use of open market operations to soften the pressure of high rates.

On October 29, 1929, when the stock market crashed, the New York Fed bought about $125 million of Treasury securities, five times the maximum weekly purchase amount authorized by the OMIC. The purchases about doubled total holdings of government securities by all Federal Reserve Banks, which stood at $271 million on October 31, 1929.[18] The New York Fed also indicated that its discount facility would be available to help the New York City banks that provided assistance to other banks facing cash needs. The OMIC, however, did not approve further purchases of securities until its next meeting, worrying that such an action would be inflationary. It then approved only enough leeway to provide for the normal seasonal increase in currency.

In 1930, the OMIC was replaced by the Open Market Policy Conference (OMPC), composed of all twelve Federal Reserve Bank governors and the members of the Federal Reserve Board. Power to call and lead the meetings was transferred from the New York Fed governor to the governor of the Board. The reorganization, which had been in the works since 1928, had the effect of shifting power from the New York Fed to the Board. An executive committee, consisting of a subset of the OMPC members, met more frequently than the whole conference and worked closely with the Trading Desk at the New York Fed on the specifics of operations. The use of an executive committee was continued until 1955, when improved transportation made frequent meetings of the full open market committee relatively easy to arrange.

During 1930, the OMPC resisted using a countercyclical approach to policy to offset the weakness of economic activity. Although Governor Harrison

asked the OMPC several times for authorization to buy more Treasury securities to promote business recovery, he was permitted to purchase only small amounts. The predominant sentiment was that with the economy weakening, the needs of trade were declining, making the contraction in money and credit appropriate. At least one governor viewed the economic weakness as the inevitable consequence of the earlier "economic debauch" of the speculative boom.[19]

The Federal Reserve did lower discount rates in several steps until 1931, but at a pace that lagged behind the effects of the contraction in money, credit, and prices. Board member Adolph Miller argued that further cuts in interest rates were desirable to counter the depressed business conditions. To support his view that the discount rate cuts to date might not have been sufficient, Miller contended at the September 1930 meeting that in times of depression, a money rate is "a particularly imperfect indicator of the true state of credit." Nonetheless, the OMPC remained cautious, hoping that economic conditions would improve.

The OMPC was disturbed by the banking crises that took place from October to December 1930 and in March 1931. During these periods, bank failures and runs on banks caused the demand for currency to rise dramatically. The Federal Reserve provided the currency demanded but did not fully offset the reduction in member bank reserves that the banks suffered as the currency was paid out. Available records do not indicate that the OMPC members discussed the severe contractions of member bank reserves, money, and credit resulting from the currency drains. The OMPC made no adjustments to its routine instructions for open market operations, which generally authorized net purchases (and in some instances, sales) of up to $100 million of Treasury securities between meetings if they were needed to stabilize money market rates. Much of the conference's discussion following the first banking crisis concerned supervisory issues, particularly as they applied to the Bank of the United States, by far the largest failure.[20]

In contrast, the Federal Reserve raised rates promptly in October 1931 to stem gold outflows that occurred after Great Britain went off the gold standard.[21] The New York Fed raised its basic discount rate from 1 1/2 to 3 1/2 percent. The action severely strained an already weakened financial system. The higher rates did stem the gold outflow, but they also led to a renewed increase in the rate of bank failures and another depositor rush to currency. Although banks used the discount window because they needed the reserves, they were uncomfortable doing so, and some feared that using the window would be viewed as a sign of financial weakness.

In April 1932, the OMPC gained another proponent of a more active countercyclical policy, the new Treasury Secretary, Ogden Mills. He found

the Federal Reserve's failure to act "almost inconceivable and almost unforgivable . . . the resources of the System should be put to work on a scale commensurate with the existing emergency."[22] In the face of strong pressure from Congress and the Hoover administration, the OMPC did authorize $500 million of purchases of Treasury securities. (The leeway had been increased gradually from $120 million to $250 million between August 1931 and February 1932.) The reserve impact of the initial purchases was partially offset by gold outflows, but after a couple of months gold flowed back. Bank failures gradually subsided, and people began to return currency to the banks. The banks used some of the additional reserves to reduce their use of the discount window and to increase their holdings of excess reserves. But money and credit also grew, and the economy showed some meager signs of recovery for a while in 1932.

The OMPC members, however, believed that excess reserves were rising because banks were not finding attractive lending opportunities. More likely, banks simply wanted more excess reserves in the wake of the banking crises. Burgess notes that during the depression, banks became increasingly strict in their lending practices and were not taking care of their regular customers.[23] But in the face of the excess reserves, the Fed gave up on adding reserves and did not make any more substantial open market purchases after August 1932. Indeed, in November the OMPC contemplated selling securities to eliminate the excess reserves, but the administration discouraged that policy course. Early in 1933, the Fed again rejected suggestions to do something stimulative, even though a third severe banking crisis began in January and lasted into March.

Active Policymaking by the Administration: 1933 to 1939

When the Roosevelt administration was installed in March 1933, it very quickly instituted a universal bank holiday in the hope of resolving the crisis atmosphere and ending the series of runs and bank failures. Banking legislation in 1933 gave legal status to the bank holiday and authorized orderly reopenings. It allowed for issuance of Federal Reserve notes against government collateral and emergency issuance against other collateral. The Board was given power to alter member bank reserve requirements within a fairly wide range that included the existing ratios as lower bounds; the OMPC, as then constituted, was formally recognized. Finally, the legislation introduced federal deposit insurance and created the Federal Deposit Insur-

ance Corporation (FDIC). Temporary insurance began in January 1934 while a more permanent plan was worked out.

The Banking Act of 1935 went further. It reorganized the Federal Reserve System, introducing the basic structure that exists today. The Board became the Board of Governors of the Federal Reserve System, with seven governors, one of whom was designated Chairman. The Treasury Secretary and the Comptroller of the Currency no longer sat on the Board. The act formally charged the Board with responsibility for exercising such powers as it possessed to promote conditions consistent with business stability. The Reserve Bank governors were redesignated as presidents, and membership of the renamed Federal Open Market Committee (FOMC) was limited to five presidents at any one time. The act also took away the power of individual Reserve Banks to buy or sell government debt without permission of the FOMC, thereby formally ending one of the major controversies of the 1920s. Finally, it made permanent the provision of deposit insurance.

The Roosevelt administration generally supported activist government economic policies, and it took the lead in ending the pattern of money contraction. In 1934, Marriner Eccles was appointed Governor of the Board (and later Chairman as the restructuring took effect). He was a strong believer in an active Federal Reserve policy to combat deflation and unemployment. The OMPC and then the FOMC pursued policies designed to produce easy financial conditions. Nevertheless, the Federal Reserve actually made little use of either open market operations or rediscounting, its traditional policy tools.

Instead, gold returned to center stage as the primary source of money expansion. The administration took the country off the gold standard in April 1933. It allowed the price of gold to rise in the market until it established a new parity of $35.00 a troy ounce in January 1934, up from $20.67. The price was high enough to attract a large gold inflow from abroad, which the Treasury monetized by issuing gold certificates to the Federal Reserve. The Federal Reserve did not offset the resulting rise in reserve balances. Furthermore, because deposit insurance was increasing public confidence in the banks and ending the runs, currency flowed back to the banks and increased their reserves. Hence, even though the Federal Reserve took no action, reserves and money grew rapidly between 1934 and 1937, and economic activity expanded.

The gold and currency flows did stimulate money growth, but reserves grew even faster and the banks built up unprecedented holdings of excess reserves. At the time, Fed officials were puzzled by the buildup, and many of them interpreted it as a sign that there was no loan demand from creditworthy customers. They worried that the excess reserves could set off

inflation at some point in the future and consequently sought a way to eliminate them. Open market sales of securities were contemplated, but the excesses were so large that such sales would have reduced Federal Reserve earnings to the point where covering expenses might have been difficult. Discount window borrowing already was negligible, so there was no scope for further reductions.

Instead, the Federal Reserve turned to its new tool, reserve requirement ratios, and raised the ratios dramatically in several steps in late 1936 and early 1937. To the frustration of Fed officials, the banks built up their excess reserves again and, in the process, contracted the money stock. At the same time, the Treasury stopped issuing gold certificates to the Federal Reserve against the gold inflows, thus halting reserve injections from that source. Economic activity contracted until 1938, when the Fed reduced reserve requirements modestly and the Treasury resumed monetizing gold inflows.

The Federal Reserve made almost no use of open market operations to change the size of its portfolio, not even to offset seasonal movements in currency and the Treasury balance. Variations in excess reserves were permitted to absorb the seasonal swings in those factors. The Fed replaced maturing issues and, to achieve "orderly markets," made swaps that changed the composition of its holdings.[24] In 1937, the FOMC announced that it was prepared to make open market purchases to maintain orderly market conditions and to facilitate adjustment of the banking system to the increased reserve requirements. Between April 4 and April 28, $96 million of Treasury bonds were added to the portfolio to stabilize the market for government bonds because "the increased importance of bonds as a medium of investment for idle bank funds makes the maintenance of stable conditions in the bond market an important concern of banking administration."[25] At the close of 1937, the portfolio had grown slightly, to $2,564 million (Table 1).

Furthermore, even though the Fed cut the discount rate to 1 1/2 percent and then to 1 percent, the facility fell into disuse after the banking crisis of 1933. Throughout the late 1930s, the discount rate almost always exceeded market rates on short-term instruments. The combination of high excess reserves and a slight penalty rate took away the incentive to use the window. Outstanding discount window credit rarely exceeded $10 million in the latter half of the 1930s.

In 1939 and 1940, gold inflows to the United States reached unprecedented levels reflecting capital flight from Europe during the war and payments from Great Britain for war materiel, causing bank reserve levels to swell significantly. Reserves were drained slowly through periodic securities sales from the System's portfolio over the course of these two years. Because of

occasional disruptions in the U.S. Treasury securities markets, sizable purchases of Treasuries were also made on occasion to cushion price declines and restore orderly markets.[26]

Accommodating War Finance in the 1940s

Before the United States entered the Second World War, the Federal Reserve made only very limited use of open market operations—most notably, some purchases of Treasury securities after war was declared in Europe in 1939. Gold inflows continued to play the major role in supporting reserve expansion through 1941. As deficit financing of the war expanded, the Federal Reserve became a more active purchaser of Treasury debt. The Treasury wanted to keep its borrowing costs low and encouraged the Fed to hold down interest rates. In April 1942, the Fed formally pegged the rate at which it would buy Treasury bills at 3/8 of 1 percent, a level held until 1947. It pegged rates for making purchases (or sales) on longer term Treasury debt as well, although less formally. During this period, the Treasury—by dictating the rates at which the Federal Reserve would buy and sell securities—and the public, in its response to these rates, determined both the size and the composition of the Federal Reserve's portfolio. In practice, because the pattern of rates was steeper than underlying market forces called for, the largest purchases were of short-term debt.[27] Indeed, sales of Treasury bills and certificates of indebtedness to the Federal Reserve were often substantial. Because the discount rate was always at least 1/2 percent, banks that held Treasury bills found it advantageous to sell them to the Federal Reserve when they needed funding, rather than to use the discount window. Hence, discount window borrowing was not important during the war.

With confidence in the banks rising and prosperous economic times making banks more willing to expand loans and investments, excess reserves fell. The drop was assisted in November 1941 by an increase in reserve requirements. Measured inflation picked up initially, but once the United States entered the war late in 1941, it became very modest. Some inflation was disguised by price controls, but the public also chose to hold more money balances and save more in a wartime economy with few consumer goods available.

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 quickly shifted resources to civilian production. In attempting to restrain money and credit growth, the Federal

Reserve was handicapped by its commitment to stabilize interest rates on government securities.

By the late 1940s, inflationary pressures emerged as people spent some of their accumulated wealth and reduced their money balances from the unusually high wartime levels. The government ran large budget surpluses, but the debt outstanding was still substantial. Accordingly, the Treasury resisted Federal Reserve requests to raise interest rates to contain the inflationary pressures. In 1947, the Treasury finally did agree to an upward adjustment of the rates on the shorter maturities, creating a considerably flatter yield curve. Federal Reserve purchases of securities were rather variable. Despite the inflation, the 2 1/2 percent rate on long-term bonds was above the market clearing rate, and the Federal Reserve actually sold bonds. Money fell, credit conditions tightened, and there was a mild recession in 1949.

Unlike most of its trading partners, the United States continued to maintain a fixed price for gold, $35 an ounce, during and after the war (although during the war gold exports were restricted). Following the war, the United States ran large trade surpluses as other countries began to rebuild. Gold flowed into the country. During the late 1940s, a series of international negotiations resulted in the establishment of a modified gold exchange standard. In addition, a new organization, the International Monetary Fund, was created to help countries reestablish pegged exchange rates and to ease the transition to new exchange rates when currency imbalances created unacceptably large reserve flows at the existing rates. The founders of the new system believed that it would be flexible enough to prevent a recurrence of the international stresses of the 1930s. (In practice, adjustments proved more difficult than had been anticipated and were not often made.) The procedures took on the name of the resort in New Hampshire where negotiators met, and came to be known as the Bretton Woods system.

Resumption of an Active Monetary Policy in the 1950s and 1960s[28]

In 1950, inflation related to the Korean War convinced the FOMC that the rates being pegged on Treasury securities were too low. The Trading Desk attempted to discourage securities dealers from offering it Treasury issues. The Desk often delayed processing offers for several hours to induce dealers to find another purchaser. In the end, however, if the dealers could not obtain reasonable bids from other sources, the Fed generally bought the securities at the pegged rates.

The Treasury was reluctant to give up the ability to finance the debt cheaply, and the Federal Reserve negotiated with the Treasury for an extended period to gain the right to make its own monetary policy decisions. By March 1951, an "Accord" was reached that allowed the Federal Reserve to resume an active and independent monetary policy. William McChesney Martin, who was soon to become Chairman of the Board of Governors of the Federal Reserve, handled the final stages of the negotiation for the Treasury.[29]

After the Accord, the FOMC created a subcommittee, headed by Chairman Martin, to investigate how best to carry out an active monetary policy and to encourage the return of an efficiently functioning government securities market.[30] The FOMC adopted most of the key recommendations of the subcommittee and gradually withdrew its support of interest rates.[31] Between 1953 and 1960, it pursued what came to be known as a "bills only" policy, generally confining open market operations to short-maturity Treasury securities—bills and certificates of indebtedness. The approach left longer maturity coupon securities free to trade without Federal Reserve interference, helping the market-clearing mechanism to function and emphasizing that longer term interest rates were no longer pegged. The decision was also justified by citing a common belief that, historically, effective central banks had largely restricted their portfolios to high-quality short-term liquid instruments. On only one occasion, in 1958, were coupon securities purchased to address "disorderly" markets. (Coupon securities maturing in less than a year were purchased in 1960 when other issues were in short supply.)

To create a climate in which dealers could make markets on an equal footing, the Trading Desk developed the competitive "go around" technique, still in use today, in which all of the dealers are contacted simultaneously and given the opportunity to make bids or offers. The Desk also increased the number of dealers with which it would trade and specified criteria that dealers had to meet to qualify for a trading relationship.[32]

During the 1950s, the Federal Reserve developed open market operations into the primary tool for carrying out monetary policy, with discount rate and reserve requirement changes used as occasional supplements. Margin requirements on stock purchases were adjusted occasionally to encourage or discourage credit use. In establishing open market policy, the FOMC took into account that the level of the discount rate would influence interest rates and the banks' perception of reserve availability. It did not (and does not), however, have the authority to change the discount rate, and it considered the rate to be given within the context of short-term policymaking. The Board of Governors approved periodic adjustments to the discount rate when the rate got out of line with market rates. On other occasions, changes were made in conjunction with adjustments in other

tools when the Board wished to emphasize a shift in policy stance. The window was administered to reinforce the banks' reluctance to borrow from the Federal Reserve. The Board changed reserve requirements occasionally to signal a policy shift. The changes were far smaller in magnitude than those of the 1930s, and the impact on reserves was generally cushioned with open market operations that partially offset the reserve impact.

While FOMC members believed that interest rates played an important role in the economy, they felt it would be unwise to establish interest rate targets. The use of such targets, they reasoned, would increase the difficulty of making a break with the strict rate pegging of the 1940s. In developing policy guidelines at its meetings, the FOMC considered a number of indicators. It gave special emphasis to the behavior of bank credit (commercial bank loans and investments) as an intermediate policy guide. It sought to speed up bank credit growth in periods when economic activity showed weakness and to slow it down in periods of rapid growth. It did not have direct control over bank credit, however, or even timely information on recent performance. Consequently, bank credit was not suitable for day-to-day operating guidance, so short-run policy focused on free reserves, defined as excess reserves less reserves borrowed from the discount window.[33]

At the conclusion of each meeting, the FOMC created a written directive for the Trading Desk at the New York Fed. It was deliberately nonspecific, avoiding even a hint of targeting interest rates. For example, in November 1957, the FOMC directed the Desk to conduct operations "with a view to fostering sustainable growth in the economy without inflation, by moderating pressures on bank reserves." The Manager of the System Open Market Account surmised from listening to the discussion at the FOMC meeting what policy steps the Committee wanted.[34]

In the Desk's day-to-day operations, it targeted free reserves as a way of providing some anchor to policy guidelines. A relatively high level of free reserves was regarded as representing an easy policy: the excess reserves available to the banks were expected to facilitate more loans and investments. Net borrowed reserves left the banks without unpledged funds with which to expand lending and were consequently viewed as fostering a restrictive policy environment. High, rather than rising, free reserve levels were thought to foster expanding bank credit since banks would perpetually have more excess reserves than they wanted and would keep increasing their lending. High net borrowed reserve levels would, in a parallel manner, encourage persistent loan contraction.[35]

Research staff members developed and refined techniques during the 1950s and 1960s for estimating each day what free reserves would be for the

reserve maintenance period by forecasting both nonborrowed and required reserves.[36] The reserve factor estimates, which affected nonborrowed reserves, were subject to sizable errors, even though considerable resources were devoted to obtaining timely information about the past and likely future behavior of the more volatile factors. The reserve estimates and market conditions were reviewed at a daily conference call held with senior Board staff officials and a president who was a voting FOMC member.[37]

The Trading Desk generally bought or sold Treasury bills when forecasts suggested that free reserves were significantly below or above the objective, especially if the free reserve estimates were confirmed by money market conditions. RP operations were resumed in 1951. By this stage, RPs in both government securities and BAs were generally being undertaken at Federal Reserve initiative "to provide temporary, but immediate, reserve assistance to the central money market at times of unusual strain on that market."[38] Until the 1970s, RPs were done only with nonbank dealers at preannounced rates—usually at or slightly below the discount rate—although beginning in 1968, the RP rate was occasionally set slightly above the discount rate. The practice of arranging RPs only with nonbank dealers was a holdover from the earlier view that RPs served primarily to finance dealer positions in securities. On occasion during the 1950s and 1960s, an RP would still be arranged at the request of dealers facing difficulties in financing their positions in the markets. In discussing repurchase operations at the FOMC's annual reviews of operating guidelines, Governor J.L. Robertson objected to the FOMC's use of the instrument, arguing that RPs were not security purchases in the open market, as authorized by the Federal Reserve Act, but were actually loans to dealers.[39] Most members of the Committee disagreed. They considered RPs to be an appropriate instrument that had proved to be of inestimable value in the implementation of monetary policy; their continued use was authorized.

After the introduction of matched sale-purchase transactions (MSPs) in 1966, the Trading Desk was also able to drain reserves temporarily. MSPs were developed in response to problems that arose from a prolonged airline strike. The strike inhibited the clearing of checks through the banking system, which caused a sharp rise in Federal Reserve float and a corresponding bulge in reserves. MSPs proved to be a flexible way to absorb reserves on a short-term basis, leaving open the possibility of extending the period of reserve absorption by arranging new MSP transactions if the airline strike continued. Thereafter, MSPs proved useful in temporarily draining reserves during short-lived market disruptions and under more normal circumstances when temporary reserve drains were called for.[40]

Because the FOMC was also interested in money market conditions, the Trading Desk continued to watch the "tone and feel of the markets" each day

in deciding whether to respond to the signals given by the free reserve estimates. The tone of the markets might suggest whether the reserve estimates were accurate. If the banks were short of reserves, they would sell Treasury bills, a secondary reserve, and put upward pressure on bill rates. The banks would also cut back on loans to dealers, thus making dealer financing more difficult. Reading the tone of the markets was considered something of an art. Desk officials monitored Treasury bill rates, dealer financing costs, and comments from securities dealers concerning difficulties in financing their inventories of securities.

The rate on Federal funds played only a limited role as an indicator of reserve availability during these years, although it gained attention during the 1960s.[41] The interbank market was not very broad as the 1960s began, but activity was expanding. Until the mid-1960s, the Federal funds rate did not trade above the discount rate. During "tight money periods," when the Trading Desk was fostering significant net borrowed reserve positions, funds generally traded at the discount rate, and the funds rate was not considered a useful indicator of money market conditions. When free reserves were high, funds often traded below the discount rate and showed some day-to-day variation. At such times, the funds rate received greater attention as an indicator of reserve availability.

There was considerable surprise when the funds rate first rose above the discount rate, briefly in October 1964 and more persistently in 1965. As large banks became more active managers of the liability side of their balance sheets, they borrowed funds in the market in a sustained way. Banks had introduced large negotiable certificates of deposit (CDs) in 1961. But CD borrowings were (until 1991) subject to reserve requirements and (until 1970) to interest rate ceilings under Regulation Q. Borrowings from other banks through the Federal funds market were free of reserve requirements and interest rate ceilings. Furthermore, they were not subject to the restrictions on prolonged use that were applied to the Federal Reserve's discount window. The changes in liability management techniques meant that individual banks could expand credit even when they did not have free reserves if they were willing to bid aggressively for wholesale funding from other banks. Their actions were making free reserves a less reliable predictor of bank credit growth.

In 1961, several developments led the FOMC to abandon its "bills only" restrictions. The new Kennedy administration was concerned about gold outflows and balance of payments deficits and, at the same time, it wanted to encourage a rapid recovery from the recent recession. Higher rates seemed desirable to limit the gold outflows and help the balance of payments, while lower rates were wanted to speed up economic growth.

To deal with these problems simultaneously, the Treasury and the FOMC attempted to encourage lower long-term rates without pushing down short-term rates. The policy was referred to in internal Federal Reserve documents as "operation nudge" and elsewhere as "operation twist." For a few months, the Treasury engaged in maturity exchanges with trust accounts and concentrated its cash offerings in shorter maturities.

The Federal Reserve participated with some reluctance and skepticism, but it did not see any great danger in experimenting with the new procedure. It attempted to flatten the yield curve by purchasing Treasury notes and bonds while selling short-term Treasury securities.[42] The domestic portfolio grew by $1.7 billion over the course of 1961. Note and bond holdings increased by a substantial $8.8 billion, while certificate of indebtedness holdings fell by almost $7.4 billion (Table 2). The extent to which these actions changed the yield curve or modified investment decisions is a source of dispute, although the predominant view is that the impact on yields was minimal.[43] The Federal Reserve continued to buy coupon issues thereafter, but its efforts were not very aggressive. Reference to the efforts disappeared once short-term rates rose in 1963. The Treasury did not press for continued Fed purchases of long-term debt. Indeed, in the second half of the decade, the Treasury faced an unwanted shortening of its portfolio. Bonds could not carry a coupon with a rate above 4 1/4 percent, and market rates persistently exceeded that level. Notes—which were not subject to interest rate restrictions—had a maximum maturity of five years; it was extended to seven years in 1967.

The System portfolio grew rapidly over the balance of the decade. In addition to providing reserves to support rising money balances, reserves were needed to meet higher reserve requirements. The Federal Reserve purchased both short-term instruments (bills and certificates of indebtedness) and longer term coupon securities. However, there was no special emphasis on acquiring coupon securities, and holdings fell in some years.[44]

During the mid-1960s, policymakers generally viewed the basic policy process with some satisfaction. Reasonable price stability had been reestablished, and recessions had been mild, short-lived interruptions in a period of prolonged prosperity. In the latter half of the 1960s, however, rising inflation began to accompany the prosperity. Primary blame was placed on the budget deficits generated to finance U.S. involvement in the Vietnam War and "Great Society" social programs. But some at the Federal Reserve and in the academic community expressed the view that expansionary monetary policy was also contributing to inflation.

Economists, both within and outside the Federal Reserve, questioned the assumptions underlying the existing monetary policy procedures, including

Table 2. **System Open Market Account Holdings, 1951-96 (Post-Treasury–Federal Reserve Accord)**
Millions of U.S. Dollars

Year-End	Treasury Bills	Treasury Certificates	Treasury Notes	Treasury Bonds	Total Treasury Securities[a]	Federal Agency Securities	Bankers' Acceptances	Total Holdings[a]	Annual Growth Rate (Percent)
1951	467.9	12,724.6	5,068.1	5,344.0	23,604.6	0.0	0.0	23,604.6	13.9
1952	742.0	4,995.7	13,774.0	4,522.0	24,033.7	0.0	0.0	24,033.7	1.8
1953	2,596.3	5,816.5	13,263.7	3,641.2	25,317.7	0.0	0.0	25,317.7	5.3
1954	2,167.0	13,882.3	6,037.3	2,801.8	24,888.4	0.0	0.0	24,888.4	-1.7
1955	1,366.6	5,920.7	14,165.9	2,801.8	24,255.0	0.0	23.8	24,278.8	-2.4
1956	1,721.3	10,932.7	9,153.9	2,801.8	24,609.7	0.0	33.5	24,643.2	1.5
1957	983.6	19,933.6	0.0	2,801.8	23,719.0	0.0	42.3	23,761.3	-3.6
1958	2,250.5	18,649.7	2,867.6	2,483.8	26,251.6	0.0	43.3	26,294.9	10.7
1959	2,605.8	10,507.0	11,010.3	2,483.8	26,606.9	0.0	44.2	26,651.1	1.4
1960	2,900.2	9,059.7	12,481.3	2,543.1	26,984.3	0.0	53.3	27,037.6	1.5
1961	3,193.1	1,699.5	19,983.8	3,845.7	28,722.1	0.0	48.5	28,770.6	6.4
1962	2,442.0	13,181.9	10,717.3	4,136.8	30,478.0	0.0	52.6	30,530.6	6.1
1963	4,141.4	7,066.2	17,729.1	4,645.4	33,582.1	0.0	70.0	33,652.1	10.2
1964	6,044.3	0.0	25,187.5	5,274.5	36,506.3	0.0	58.9	36,565.2	8.7
1965	9,100.7	0.0	24,827.7	6,549.8	40,478.2	0.0	74.5	40,552.7	10.9
1966	11,803.7	4,351.0	21,302.0	6,198.8	43,655.5	0.0	69.1	43,724.6	7.8
1967	15,975.3	0.0	26,918.4	6,086.5	48,980.2	0.0	74.9	49,055.1	12.2
1968	18,756.2	0.0	28,706.1	5,474.5	52,936.8	0.0	57.7	52,994.5	8.0
1969	22,265.2	0.0	31,391.9	3,496.4	57,153.5	0.0	63.9	57,217.4	8.0
1970	25,964.9	0.0	33,236.3	2,940.3	62,141.5	0.0	57.5	62,199.0	8.7
1971	30,155.4	0.0	35,553.9	3,286.3	68,995.6	485.0	79.7	69,560.3	11.8
1972	29,664.7	0.0	36,681.4	3,462.4	69,808.5	1,311.4	70.5	71,190.4	2.3
1973	36,897.1	0.0	38,412.2	3,148.9	78,458.2	1,937.5	68.0	80,463.7	13.0
1974	36,764.5	0.0	40,009.3	3,283.4	80,057.2	4,702.1	579.0	85,338.3	6.1
1975	37,708.2	0.0	43,988.5	5,521.6	87,218.3	6,072.1	0.0	93,290.4	9.3
1976	38,571.6	0.0	47,971.8	6,725.2	93,268.6	6,793.8	0.0	100,062.4	7.3
1977	42,932.8	0.0	50,509.1	8,848.3	102,290.2	8,003.7	0.0	110,293.9	10.2
1978	43,802.9	0.0	54,854.9	12,464.8	111,122.6	7,895.6	0.0	119,018.2	7.9
1979	50,045.8	0.0	56,494.5	14,552.6	121,092.9	8,215.6	0.0	129,308.5	8.6
1980	46,993.9	0.0	58,718.3	16,892.5	122,604.7	8,739.3	0.0	131,344.0	1.6
1981	52,330.6	0.0	59,978.4	18,400.5	130,709.5	9,125.4	0.0	139,834.9	6.5
1982	58,028.5	0.0	62,625.9	18,555.7	139,210.1	8,936.9	0.0	148,147.0	5.9
1983	71,096.2	0.0	63,933.9	20,813.7	155,843.8	8,645.0	0.0	164,488.8	11.0
1984	74,875.3	0.0	65,236.8	22,951.0	163,063.1	8,389.3	0.0	171,452.4	4.2

Sources: For 1951-53 data: Board of Governors of the Federal Reserve System, "Banking and Monetary Statistics"; for 1954-96 data: Federal Reserve Bank of New York *Open Market Annual Reports*.

Note: Data exclude effects of RPs and MSPs.

[a] Figures may not sum to totals because of rounding.

Table 2. **System Open Market Account Holdings, 1951-96 (Post-Treasury–Federal Reserve Accord)**
Millions of U.S. Dollars

Year-End	Treasury Bills	Treasury Certificates	Treasury Notes	Treasury Bonds	Total Treasury Securities[a]	Federal Agency Securities	Bankers' Acceptances	Total Holdings[a]	Annual Growth Rate (Percent)
1985	89,471.2	0.0	67,646.6	24,726.4	181,844.2	8,227.4	0.0	190,071.6	10.9
1986	108,570.7	0.0	68,125.6	25,723.8	202,420.1	7,829.3	0.0	210,249.4	10.6
1987	112,475.3	0.0	82,973.4	28,241.5	223,690.2	7,553.1	0.0	231,243.3	10.0
1988	117,909.8	0.0	90,950.5	29,929.4	238,789.7	6,966.5	0.0	245,756.2	6.3
1989	106,647.0	0.0	91,381.1	30,813.6	228,841.7	6,524.6	0.0	235,366.3	-4.2
1990	119,694.8	0.0	91,406.5	31,163.2	242,264.5	6,341.6	0.0	248,606.1	5.6
1991	138,732.4	0.0	101,519.7	32,331.5	272,583.6	6,044.5	0.0	278,628.1	12.1
1992	150,218.7	0.0	118,179.1	35,037.2	303,435.0	5,412.6	0.0	308,847.6	10.8
1993	167,935.7	0.0	132,076.1	39,571.6	339,583.4	4,638.4	0.0	344,221.8	11.5
1994	185,419.8	0.0	144,143.3	42,997.5	372,560.6	3,636.7	0.0	376,197.3	9.3
1995	195,451.8	0.0	151,013.2	44,068.6	390,533.6	2,634.0	0.0	393,167.6	4.5
1996	205,352.5	0.0	150,921.7	49,338.9	405,613.2	2,224.7	0.0	407,837.9	3.7

[a] Figures may not sum to totals because of rounding.

the connections of free reserves and bank credit to the ultimate policy goals of economic expansion and price stability. Quantitative methods were increasingly applied to test the hypothesized relationships among operational, intermediate, and ultimate policy objectives. Some studies suggested that more attention should be paid to money growth and to the behavior of total reserves or the monetary base. In response, the FOMC expanded the list of intermediate guides to policy. The directives continued to focus on bank credit but added money growth, business conditions, and the reserve base. Free reserves continued to be the primary gauge for operations, although the Federal funds rate gained more prominence as an indicator of money market conditions.

Although the FOMC met every three to four weeks, it was concerned that developments between meetings might alter appropriate reserve provision. Consequently, in 1966 it introduced a "proviso clause" that set conditions under which the Trading Desk might modify the approach adopted at the preceding meeting. Bank credit data still were available only with a lag. After some experimentation, the FOMC adopted what it called the bank credit proxy, consisting of daily average member bank deposits subject to reserve requirements. If the proxy moved outside the growth rate range discussed at the FOMC meeting, the Desk would generally adjust the target level of free or net borrowed reserves modestly.[45] Sometimes the proviso clause permitted either increases or decreases in the objective for free reserves. Frequently, it allowed adjustments only in one direction.

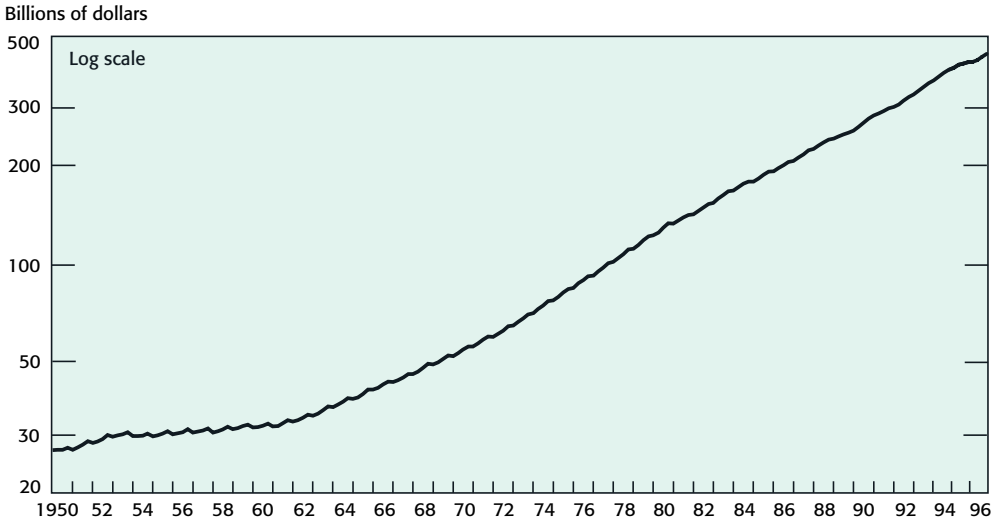
Targeting Money Growth and the Federal Funds Rate: 1970 to 1979

The inflationary pressures that developed in the late 1960s led to a number of policy initiatives in the early 1970s. Inflation in the United States encouraged outflows of official gold holdings and made the Bretton Woods system of pegged exchange rates progressively less viable. In 1970, the Federal Reserve formally adopted monetary targets with the intention of using them to reduce inflation gradually over time. In August 1971, the Nixon administration froze prices and wages and suspended gold payments.[46] The administration's actions on gold effectively ended the Bretton Woods exchange rate system and the last remnant of the gold standard. Over the next two years, the industrialized countries moved toward floating exchange rates. The official price of gold was raised in two steps to $42.22 a troy ounce by 1973, but because the Treasury did not make purchases or sales, the price ceased to have any role in constraining growth in money or inflation.

While numerous policy approaches were used to deal with inflation during the decade, the efforts proved unsuccessful, and prices almost doubled (based on the consumer price index) between 1970 and 1979; the rate of inflation was considerably higher at the decade's end than at the beginning. Potential inflationary pressures arose from sharp increases in the relative price of oil achieved by the Organization of Petroleum Exporting Countries and from continued expansion of the size of government. The inflationary pressures were not attacked with sufficient force to rein them in permanently, although on several occasions monetary policy tightening slowed inflation for a while. Efforts were repeatedly abandoned, however, before inflation was wrung out of the system because attention often turned toward addressing signs of weakness in the economy.

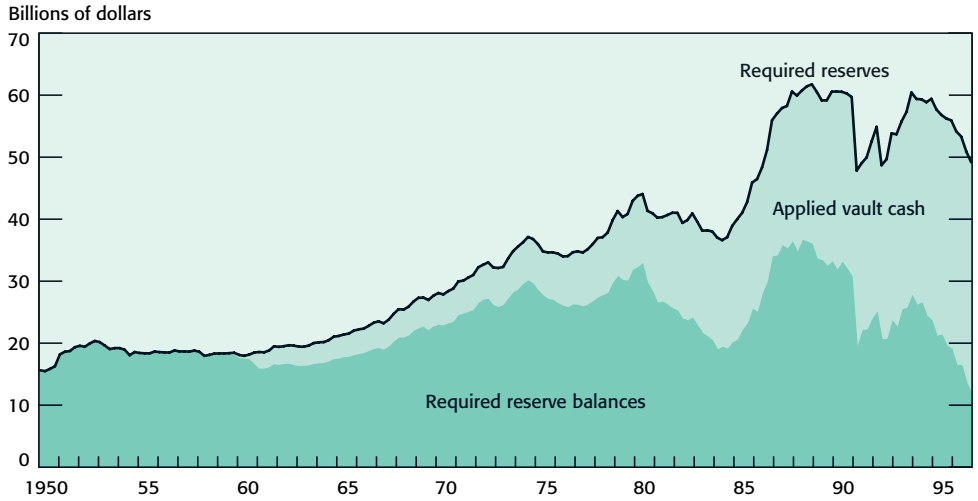
Policy procedures focused primarily on very short-term growth rates for the monetary aggregates. Over extended periods of time, the growth rate objectives were frequently exceeded. Partly in consequence, the Federal Reserve's portfolio grew rapidly over the decade as a whole. The System's securities portfolio rose by $67 billion, or at an 8.5 percent annual rate between 1970 and 1979 (Table 2). Much of the increase supported currency, which expanded rapidly when nominal income accelerated in the inflationary climate (Chart 1). Reserve balances grew sharply in the first half of the decade when deposit growth was strong, but then tailed off when the demand for money weakened (Chart 2). Money demand softened at least in part as a result of innovations in financial instruments that encouraged money substitutes. Because deposit rates were constrained, rising inflation and the

Chart 1. Currency in Circulation, Including Vault Cash



Source: Board of Governors of the Federal Reserve System.
Note: All figures are quarterly averages.

Chart 2. Required Reserve Balances and Applied Vault Cash



Source: Board of Governors of the Federal Reserve System.
Notes: All figures are quarterly averages. Before 1959 the Federal Reserve did not allow vault cash to count towards the fulfillment of reserve requirements.

resulting increases in nominal market interest rates made money substitutes attractive.

The Federal Reserve bought a mix of bills and coupon securities during the 1970s, so that the average maturity of the System portfolio began to lengthen in the mid-1970s. The average maturity of Treasury debt outstanding also began to lengthen after the Treasury gained authority to issue bonds through limited exemptions from interest rate ceilings beginning in 1971 and as the maximum permitted maturity of notes was increased from seven to ten years in 1976.[47] Indeed, for about a decade starting in the mid-1970s, the average maturities of debt outstanding and the Federal Reserve's holdings moved in tandem as the Trading Desk bought in the maturity ranges that were most plentiful in the market.[48]

Open market operations were the dominant monetary policy tool in this period, with reserve requirements and the discount window remaining in supporting roles. Reserve requirements were unpopular because they represented an indirect form of taxation. Reserve balances held to meet requirements are nonearning assets that reduce a bank's level of investable funds. As nominal interest rates rose, so did the effective tax. During the 1970s, the Fed's reserve requirement ratios were well above those applied by most states to state-chartered nonmember banks. Many banks, therefore, chose to withdraw from the Federal Reserve System despite its benefits, such as access to the discount window.[49] Even in the face of rising inflation, the Fed felt constrained in raising reserve ratios as a means of tightening policy. Requirements were lowered seven times and raised four times. The decline in bank membership was also addressed with a new structure of reserve requirement ratios in 1972. Ratios were steeply graduated to help the smaller banks that were most likely to drop their membership.

Membership worries were also behind changes in the discount window mechanism. In 1973, the Fed adopted a special seasonal borrowing privilege to accommodate small banks with large seasonal swings in loan demand and limited access to the national credit markets.[50] Other use of the window, referred to as adjustment credit borrowing, continued to be monitored by Federal Reserve authorities to discourage both persistent borrowing and borrowing to lend at higher rates. The temptation to engage in such arbitrage increased when operating procedures pushed the Federal funds rate above the discount rate.

The techniques for setting and pursuing money targets developed gradually during the decade, with frequent experimentation and modification of procedures taking place in the first few years of the 1970s. Nonetheless, until October 1979 the framework used by the FOMC for guiding open market operations generally included setting a monetary objective and encouraging

the Federal funds rate to move gradually up or down if money was exceeding or falling short of the objective. The Federal funds rate, as an indicator of money market conditions, became the primary guide to day-to-day open market operations, and free reserves took on a secondary role. An increasingly active market for Federal funds made the funds rate a feasible target, and the passage of time reduced the association of interest rate targeting with the rate-pegging episode of the 1940s.

Bank credit and its proxy remained for a while in the list of subsidiary intermediate targets, but they received decreasing attention. Free reserves served as an indicator of the volume of reserves needed to keep the Federal funds rate at the desired level. The Trading Desk used the forecasts of reserve factors to gauge the appropriate direction and magnitude for open market operations.

The FOMC selected growth targets for M1—and to a lesser extent for M2—that evolved into two-month growth rate ranges with the month before the FOMC meeting as a base.[51] The FOMC directed the staff to develop estimates of monetary aggregate growth aimed at gradually reducing inflation. In 1972, it introduced six-month growth targets designed to achieve that goal. Econometric models, supplemented by the judgments of the staff, were used to develop the six-month and one-year estimates. The estimates assumed that the demand for money depended on economic activity and interest rate behavior, with a range of technical factors also influencing short-run money demand. Specifically, the staff estimated what Federal funds rate would achieve desired money growth. The funds rate worked by affecting the interest rates banks both paid and charged customers and hence affected the demand for money.

The FOMC chose an initial Federal funds rate target, and also instructed the Trading Desk to raise the funds rate during the intermeeting period within a limited band if the monetary aggregates were significantly above the desired growth rates and to lower the funds rate within that band if the aggregates were below them. Decisions to change the funds rate were signaled to the market indirectly, mostly through temporary RP or MSP operations. An increase would be indicated either with an MSP operation undertaken when funds were trading at a previously acceptable rate or by failing to add reserves through an RP when rates rose above the previous target. Similarly, an RP operation undertaken at a previously acceptable rate or the absence of an MSP at a lower rate signaled an easing. The signals were noted immediately, but it sometimes took market participants a couple of days to gauge the extent of the move.

In 1972, the FOMC addressed criticisms of its efforts to control money from the demand side. It introduced a supplemental reserve operating

mechanism to influence money from the supply side. The development of a reserve guideline was based on the reserve-money multiplier model. The model implied that controlling total or required reserves would constrain money growth through the operation of the reserve requirement ratio. The reserve measure that the FOMC targeted was called reserves on private deposits, or RPD. It excluded reserve requirements on government and interbank deposits that were not in the money definitions.[52] Because of the widely differing reserve requirement ratios according to bank size and membership status, the linkage between RPD and Ml was not very close.

Using staff estimates of the various ratios, the FOMC set two-month growth target ranges for RPD designed to be consistent with the desired growth in Ml; it then instructed the Trading Desk to alter reserve provision in a way that was intended to achieve them. Because the FOMC feared that reserve targeting would raise the volatility of interest rates to levels it considered unacceptable, however, the FOMC also constrained the funds rate. In fact, the relatively narrow funds rate limits often dominated, and the Desk frequently missed the RPD target. RPD targets were considered to be unachievable, although the funds rate constraint precluded a true test. In 1973, RPD changed from an operational target to an intermediate target, taking its place with M1 and M2. Since information on the behavior of M1 was available almost as soon as information on RPD, RPD gradually fell into disuse. It was dropped as an indicator in 1976.

The monetary targets were modified further in 1975 in response to a congressional resolution. The Federal Reserve adopted annual target ranges and announced them publicly. A "cone" marking the range of acceptable growth rates was drawn from the base period, which was the calendar quarter most recently concluded. Every three months, the target range was moved forward one quarter. The procedure meant that by the time a given annual target period was completed, the original target had long since been superseded. Frequently, the targets were overshot, and complaints about upward "base drift" were legion. The Full Employment and Balanced Growth Act of 1978, known as the Humphrey-Hawkins Act, required the Federal Reserve to set monetary targets for calendar years and to explain any deviations.

During most of the 1970s, the FOMC was reluctant to change the funds rate by large amounts at any one time, even when staff estimates suggested that sizable modification was necessary to achieve the two-month or annual monetary goals. Part of that reluctance reflected a wish to avoid short-term reversals of the rate. Keeping each rate adjustment small minimized the risk of overdoing the rate changes and then having to reverse course. These priorities meant that the FOMC was handicapped at times when it sensed that a large rate move might be needed but was uncertain about its size. The adjust-

ments in the funds rate often lagged behind market forces, allowing trends in money, the economy, and prices to get ahead of policy.

At meetings, the FOMC frequently voted for a funds rate range that surrounded the most recent rate target. It also put relatively narrow limits on the range of potential adjustments that could be made between meetings if money growth went off course. In the early 1970s, the width of the intermeeting funds rate range was generally 5/8 of a percentage point to 1 1/2 percentage points. By the latter part of the decade, the width had narrowed to about 1/2 to 3/4 of a percentage point, and on a couple of occasions to only 1/4 of a percentage point. In addition, the specifications for the monetary aggregates were often set in a way that made it likely that the funds rate would be adjusted in one direction only, effectively cutting the range in half.

In implementing the funds rate targeting procedure, the Trading Desk responded to deviations of the funds rate from the target, primarily with the increasingly active use of temporary transactions. Occasionally, it signaled displeasure with the rate through an outright operation, but outright operations were used mostly to address protracted needs to add or drain reserves. Over time, the Desk became increasingly sensitive to preventing even minor short-term deviations of the funds rate from target. It generally added reserves by purchasing securities or arranging RPs in the market in a visible way when the funds rate exceeded the objective even slightly, and it absorbed reserves through sales or matched sale-purchase agreements when the funds rate fell short of the objective.

The Desk felt some constraint not to make reserve adjustments in an overt way when the funds rate was on target. At times when reserve estimates suggested that a large adjustment was needed but the funds rate did not confirm it early in a statement week, the Desk would worry about delaying the reserve adjustment and having to make an unmanageably large open market transaction late in the week. When the funds rate failed to confirm an estimated reserve excess or shortage, the Desk often made the reserve adjustments by arranging internal purchases or sales with foreign accounts that could not be observed by market participants. The introduction in 1974 of customer-related RPs—agreements on behalf of official foreign accounts—gave the Desk a tool for adding reserves when the funds rate was on target but a reserve need was projected.[53] (Market participants routinely assumed that outright transactions in the market for customers did not signal dissatisfaction with the funds rate, and they initially regarded customer-related RPs similarly.)

If the estimated need to add or drain reserves was too large for these techniques, the Desk often pounced on very small funds rate moves off target to justify an open market operation. For instance, when estimates suggested that additional reserves were needed, the Desk would often enter the market

to arrange an RP when the funds rate rose 1/16 of a percentage point above the preferred level. But if the funds rate fell despite the estimated need to add reserves, the Trading Desk typically allowed a 1/8 percentage point deviation to develop before it would arrange a small market operation to drain reserves. If the funds rate continued to trade off target after the Desk's first entry of the day, the Desk often arranged a second open market operation. There were operational limits to how late in the day transactions could be made to achieve a reserve effect on the same day. The cutoff was around noon for outright bill operations. (Coupon operations were never arranged for same-day delivery.) The deadline was supposed to be 1:30 p.m. for temporary transactions, but if the desired funds rate move occurred just after that time, the Desk often responded if it was anxious to conduct an operation. The end of its operating time was close to 2:00 p.m. by 1979.

The Trading Desk's prompt responses to even small wiggles in the Federal funds rate led banks to trade funds in a way that tended to keep the rate on target. Except near day's end on the weekly settlement day, a bank short of funds would not feel the need to pay significantly more than the perceived target rate for funds. Likewise, a bank with excess funds would not accept a lower rate. Rate moves during the week were so limited that they provided little or no information about reserve availability or market forces. Probably few, if any, in the Federal Reserve really believed that brief, small moves in the funds rate were harmful to the economy. The tightened control developed bit by bit without an active decision to impose it.

Targeting Money and Nonborrowed Reserves: 1979 to 1982

In October 1979, Paul Volcker, who had recently become Chairman of the Board of Governors, announced far-reaching changes in the FOMC's operating techniques for targeting the monetary aggregates. The acceleration of inflation to unacceptable rates over the preceding decade inspired a change in priorities. Chairman Volcker and other FOMC members realized that turning around these inflationary pressures, which had come to permeate economic relations, would involve costs. Interest rates would have to rise significantly beyond recent levels, although the extent of the increase could not be determined in advance. Increased rate volatility was also likely to accompany the efforts to halt inflation. The Federal Reserve's credibility with the public was low after previous efforts to slow inflation had been followed by further price acceleration. Chairman Volcker felt that only strong measures could rebuild public confidence.

Many analysts, both inside and outside the Fed, argued that using the Federal funds rate as the operational target had encouraged repeated overshooting of the monetary objectives. They contended that inertia or political concerns had caused the funds rate to be raised too slowly. Partly in response to such arguments, the FOMC began to target reserve measures derived to be consistent with desired three-month growth rates of M1. Reserve controls were expected to keep money growth from persistently exceeding (or falling short of) the target growth rate, although they would not prevent short-term deviations. The limits on the Federal funds rate were applied only to weekly averages, rather than to brief periods during the week as had been common in the 1970s. A band 4 to 5 percentage points wide allowed room for adjustments to achieve the monetary target.

Operationally, the FOMC chose desired growth rates for M1 (and M2) covering a calendar quarter and instructed the staff to estimate consistent levels of total reserves. The process resembled that used to estimate RPDs. The staff estimated deposit and currency mixes to derive average reserve ratios and currency-deposit ratios. The estimation technique employed a mix of judgment and analysis of historical patterns. It was complicated by the wide range of required reserve ratios applied to Federal Reserve member bank deposits and by the absence of reserve ratios, or even timely deposit data, from nonmember banks.[54]

From the total reserve target, the Trading Desk derived the nonborrowed reserve target by subtracting the initial level of borrowed reserves that had been indicated by the FOMC.[55] If money exceeded (or fell short of) its path, total reserves would also exceed (or fall short of) their path. Because required reserves were predetermined, the Trading Desk had limited means to change total reserves within the reserve period.[56] If the Desk only provided enough reserves to meet the nonborrowed reserve objective, banks would have to increase (decrease) their borrowing when money growth and total reserve demands were excessive (deficient).[57] Because banks were still discouraged from making frequent use of the discount window, the change in aggregate borrowing would affect the ease of obtaining reserves and interest rates. It would encourage the banks and the public to take actions that would accomplish the desired slowing or speeding up of money growth. If the pace of adjustment implied by the mechanism did not seem appropriate, instructions were occasionally given to accelerate or delay the adjustment to the borrowing objective. The FOMC could alter the basic mechanism at a meeting or direct the Desk to make adjustments between meetings under specified conditions.

To reduce overweighting of weekly movements in money, the total and nonborrowed reserve paths were computed for intermeeting average periods or, if the intermeeting period was longer than five weeks, for two subperiods.

(In 1979 and 1980, the FOMC met nine and eleven times, respectively; in 1981, it moved to the schedule of eight meetings a year in use today.) A consequence of this averaging technique was that achieving the average target level for nonborrowed reserves would have involved large swings in borrowing in the final weeks whenever there were large reserve target misses in the early part of the intermeeting period. Informal adjustments were sometimes made to smooth out these temporary spikes or drops in borrowing that were deemed inconsistent with the longer term pattern of borrowing levels and money growth adjustments to path growth. Although the adjustments were considered necessary to avoid severe short-term swings in reserve availability and interest rates, they gave the appearance of "fiddling" and caused considerable confusion for outside observers. Each week, the total reserve path and actual levels were reestimated using new information on deposit-reserve and deposit-currency ratios.

In implementing the policy, the Trading Desk emphasized that it was targeting reserves rather than the Federal funds rate by entering the market at about the same time each day—usually between 11:30 a.m. and 11:45 a.m., shortly after the reserve forecasts had been reviewed—to perform its temporary operations. The Federal funds rate was not ignored; it was used as an indicator of the accuracy of reserve estimates, although it was not always very reliable. On the margin, it could accelerate or delay by a day or so an operation to accomplish a needed reserve adjustment, but its role was greatly diminished compared with the preceding operation regimes.

Outright purchases or sales were used when estimated reserve needs or excesses extended several weeks into the future. The Trading Desk arranged outright operations early in the afternoon for delivery the next day or two days forward. Outright operations were undertaken in response to longer term reserve needs and not to signal the policy stance.

Under nonborrowed reserve targeting, policy actions were less immediately apparent to the market than they had been, although the general thrust of policy was clear. Market participants closely observed and forecast the behavior of M1 in order to anticipate the future course of the funds rate and other short-term rates. Because there was no rate target, market participants had to make judgments about the near-term course of rates, based upon their reading of money and other economic variables.[58]

The new procedures had been expected to induce considerably wider short-term swings in the Federal funds rate, although the actual changes exceeded most expectations and were accompanied by greater variation in money growth rates as well. The effective weekly average funds rate reached a low of 7.6 percent in 1980 and a high of 22.4 percent in 1981; right before the change in procedures in early October 1979, it was 11.9 percent.

In part, the sharp movements in interest rates and money may have reflected the difficulties in reversing strongly held beliefs that inflation had become a permanent phenomenon. Expectations about inflation and economic activity were being reshaped, with many people uncertain whether a new, lower inflation pattern would emerge or whether the inflation slowdown would be a temporary pause on the way to even higher rates. In this environment, people evaluated new information and judged whether the anti-inflation policies were likely to succeed. Some of the interest rate moves came in response to changes in expectations.

The control mechanism itself also appeared to play a role in the variation of money growth. It forced borrowing to move above the initial level whenever money was above the desired path. Consequently, the procedure caused enlarged borrowing until money was back on target. Since there were lags in the adjustment of money to borrowing pressures, money continued to weaken even after borrowing stopped rising. The result appeared to be a "damped cycling process."

These years also saw major regulatory and legislative changes that affected the climate for Federal Reserve policy. In 1980, Congress passed the Depository Institutions Deregulation and Monetary Control Act (MCA), which simplified the structure of reserve requirements and extended the requirements to nonmember commercial banks, thrift institutions, and credit unions with transactions deposits.[59] It eliminated requirements on personal time and savings deposits. Requirements were phased downward for member banks over a four-year period and upward for nonmember depository institutions over a seven-year period. In 1982, the Garn-St Germain Depository Institutions Act modified the MCA reserve requirements, establishing a zero requirement tranche. (These requirements are described in Chapter 6, Box A.)

Several motives were behind the changes in reserve requirements. As discussed above, reserve requirements were particularly burdensome when inflation and nominal interest rates were high. Numerous state-chartered banks had dropped their Federal Reserve membership, and largely unregulated nonbank institutions were competing for consumer funds.

The MCA also provided for interest rate ceilings to be phased out gradually on all but demand deposits. It permitted interest to be paid on consumer transaction accounts—called NOW and ATS accounts—outside the Northeast, where they had existed for some time. At the end of 1982, the Garn-St Germain Act introduced money market deposit accounts (MMDAs), which were free of interest rate ceilings.

The combination of burdensome reserve requirements and often binding interest rate ceilings had encouraged considerable economizing on deposit balances during the years with high inflation and market interest rates. Many

people had transferred liquid funds to money market mutual funds created by brokerage firms. Those funds were exempt from interest rate restrictions and reserve requirements. As the rate restrictions were eased in the early 1980s, people transferred liquid balances back into bank deposits, lifting the measured demand for money. The Federal Reserve attempted to deal with the distortions arising from regulatory and behavioral changes by redefining the monetary aggregates. All of the measures included deposits of nonmember banks and thrift institutions. The broader measures contained money market mutual funds. The Board also created two versions of M1: M1-A, which excluded the new rapidly growing NOW and ATS accounts, and M1-B, which included them. It estimated a shift-adjusted version of M1-B in an attempt to allow for the impact of the transfers. M1 (with appropriate adjustments) was close to target on average between late 1979 and mid-1982, although it varied considerably over shorter periods, falling below the target in 1981 and accelerating in 1982.

Reserve growth became quite variable during these years because of the regulatory changes and the policy procedures, but it was modest on average. In addition, currency growth slowed. Consequently, the growth of the System portfolio slowed as well.

As evidence mounted that the relatively close linkage between M1 and economic activity had broken down, the FOMC suspended its M1 target in late 1982. It had become apparent that the demand for M1 had strengthened relative to income more than had been anticipated, so that growth within the target range would have been more restrictive than seemed desirable. Some of the increase in the demand for money was attributed to the popularity of NOW accounts included in M1. In addition, the maturing that October of a large volume of special tax-favored "all savers" deposits was expected to add substantially to M1 holdings. The FOMC hoped that M2 would continue to be a reliable indicator, and for a few months at the end of 1982 it attempted to use it as a guide to building total and nonborrowed reserve targets. But MMDAs, first offered in December, proved very attractive, and the demand for M2 rose sharply.

Monetary and Economic Objectives with Borrowed Reserve Targets: 1983 to the Late 1980s

In the absence of a stable relationship between money and economic activity, the FOMC modified its procedures for guiding reserve provision in 1983. It focused on measures of inflation and economic activity and placed less

weight on the monetary aggregates. The FOMC targeted the borrowed reserve level directly, instead of computing total and nonborrowed reserve levels linked to a money measure and deriving a level of borrowing that moved with the deviations of that aggregate from target. The Committee considered whether to adjust the target up or down whenever money seemed to be deviating significantly from the desired growth path. In deciding whether an adjustment was appropriate, the FOMC allowed for any known distortions to the aggregates and also used supplemental indicators.

The monetary aggregates did not quickly resume their prior relationship with economic activity. Declining inflation made holding money more attractive. Because rates on some components of M1 were close to market rates but slow to change, interest rate sensitivity increased. The Board and Reserve Bank staffs continued in their efforts to explain movements in the monetary aggregates and interpret their significance for the economy. Remaining uncertainties caused money growth to lose its predominant position in the directive and join the list of factors shaping adjustments to the borrowing level. In view of M1's sensitivity to interest rates, the FOMC did not set targets for this aggregate. In most years during the 1980s, it gave the greatest weight to M2. While the short-term variation in demand was considerable, M2 demand relative to nominal income was fairly steady on average.

Policy decisions were also guided by information on economic activity, inflation, foreign exchange developments, and financial market conditions. The FOMC continued to set policy that was designed to be countercyclical, but at the same time anti-inflationary. Economic activity expanded in each year from 1982 to 1989, generally at a moderate rate, while inflation (measured by the consumer price index) was mostly in a 3-to-5-percent range (with a lower rate in 1986 when oil prices fell sharply).

The borrowed reserve targeting procedures introduced in 1983 persisted, with modifications, through most of the 1980s. The approach was discretionary, drawing from some of the techniques developed in earlier decades. The procedures allowed a much smaller degree of variation in the funds rate than the nonborrowed reserve procedures that had preceded it.[60] Nonetheless, the funds rate did experience some variation as a result of seasonal pressures and changes in reserve management procedures by the banks. Consequently, policy intentions were less transparent than with direct Federal funds rate targeting. Still, the borrowed reserve targeting procedures placed a relatively narrow range on the funds rate, and a policy action was usually apparent from published data and open market operations within a week or so of the change.

While the FOMC continued to target borrowed reserves through much of the 1980s, several developments changed the way the banks managed their reserve positions, which in turn affected the Trading Desk's operating

procedures. The ongoing phase-in of the MCA-mandated reserve requirement structure through 1987 meant that reserve balances swung rather sharply. In addition, banks developed an extremely cautious approach to use of the Federal Reserve's discount window in the wake of a series of well-publicized financial difficulties in the banking industry.

Relatively low levels of reserve balances, particularly in 1984, led banks to manage their day-to-day reserve positions more closely than before as they sought to avoid both overdrafts and excess reserves, reducing their flexibility to absorb routine variations in reserve levels. Working in the other direction, reserve management flexibility was increased when the reserve maintenance period was lengthened early that year from one to two weeks. (Most banks reported little impact on reserve management from the simultaneous move to quasi-contemporaneous required reserve accounting because the errors in estimates of their requirements were minor relative to the uncertainties about reserve levels stemming from customer transactions.) Reserve balances rose after 1984 because more nonmember banks and thrift institutions had to hold balances to meet requirements, but as discussed in Chapter 6, reserve management flexibility continued to be more constrained than it had been in earlier decades because reserve balance growth did not keep pace with the rising volume of interbank settlements.

Worries about the health of the banking system introduced considerable caution to the banks' approach to reserve management. In May 1984, Continental Illinois National Bank faced serious runs by uninsured depositors in the wake of large reported loan losses. To keep operating, the bank borrowed unprecedented amounts from the Federal Reserve discount window until close to year-end, when FDIC support measures were arranged.[61] Other banks became wary of using the discount window lest their borrowing be interpreted as a sign that they were also facing financial difficulties. (The Federal Reserve does not report the identities of the banks that borrow, but other banks can often guess from developments in the interbank markets.)

While Continental was borrowing in 1984, the FOMC found that maintaining the same borrowing target as before (excluding the Continental borrowing) resulted in a significantly higher range of Federal funds rate trading. It had to decide whether to accept this bank-generated tightening of money market conditions or lower the borrowing target until it was consistent with the previous funds rate range. Initially, the FOMC accepted the higher funds rates, in part because additional pressures seemed consistent with the ongoing strong economic expansion. When the economy showed signs of weakening late in the year, however, the borrowing target was lowered significantly, so that the funds rate fell.

The banks' reluctance to borrow from the discount window eased intermittently thereafter when concerns about the health of the industry receded. Several subsequent crises, however, particularly at Texas banks and at savings and loans in a number of regions, rekindled the uneasiness about borrowing. Consequently, it became harder to estimate the Federal funds rate range that would emerge from the borrowing target. The Trading Desk made informal adjustments to the borrowing target when it became clear before or during a maintenance period that pursuing the target would result in money market conditions that were significantly different from those discussed by the FOMC

The informal move away from borrowed reserve targets was speeded by the stock market break on October 19, 1987, when the Dow Jones industrial average fell 508 points, or by 22.6 percent, to 1,738.74. The Federal Reserve took a number of steps to make sure that adequate credit was available to the banks and the markets. While banks were encouraged to borrow if they faced a reserve shortage, reserve provision through open market operations was more effective because of the hesitancy of banks to use the window. The Federal funds rate was followed more actively for a number of weeks as an indication as to whether reserve levels were sufficient.

Early in 1988, it became apparent that the economy was growing rapidly despite the shock from the stock market, and the FOMC moved to be less accommodative. It discussed whether to return to borrowed reserve targeting and expressed a preference to do so. It found, however, that a stable relationship between the amount of borrowing and the funds rate did not reemerge. Consequently, it continued to give primary weight to the Federal funds rate in expressing its policy objectives. It did not manage the rate as closely as in the 1970s. Temporary open market operations continued to be conducted at a standard time each day, rather than whenever the funds rate deviated from the target. The FOMC also accepted some modest variation in the funds rate so long as the deviations did not give misleading indications of policy intentions. The return to effectively targeting the funds rate occurred gradually because other alternatives ceased to work as expected, rather than as a result of a specific decision by the FOMC.

Further Modifications in the 1990s

Effective Federal funds rate targeting continued into the 1990s. A move to announce FOMC policy decisions on the day they were made began as an experiment in 1994. The approach was formalized in 1995. Preferred funds rates are mentioned in the press releases, demonstrating the rate's key role.

Low levels of required reserve balances again became a constraining element in reserve management. The FOMC has given much greater weight than it had in the 1970s to the importance of containing inflationary pressures, and it has been able to keep them relatively low. It continues to look to a wide range of indicators in deciding where to set the funds rate.

Both the changes and the elements of continuity in Federal Reserve policy make this brief history a fitting prelude to the discussion of current policy in Chapters 5-7. First, however, we will turn our attention to two other subjects that bear on monetary policy in the middle of the 1990s: the structure of the U.S. banking system and the financial markets.