# National Monetary Policy by Regional Design: The Evolving Role of the Federal Reserve Banks in Federal Reserve System Policy

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**Abstract**

This paper examines the history of Federal Reserve Bank input into Federal Reserve System monetary policymaking. From the Fed's founding in 1914 through the Great Depression, the Reserve Banks held the balance of power. Dissatisfaction with the Fed's performance, however, led to a wholesale reorganization in 1935 that greatly enhanced the authority of the Federal Reserve Board, but retained a role for the Federal Banks through the membership of their presidents on the FOMC, as well as in setting the discount rate. I argue that the Fed's decentralized structure was not the principal cause of Fed errors during the Great Depression. In addition, by retaining a role for the Federal Reserve Banks, the Fed's present structure provides the System with a measure of political independence and encourages a competition of ideas within the System that enhances the quality of policymaking.



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The Governing Council of the European System of Central Banks (ESCB) has been charged with determining and implementing the monetary policy of the European Community. The Council will include the six members of the European Central Bank's Executive Committee and the central bank governors of the European Community's eleven member states. The Federal Open Market Committee (FOMC) of the U.S. Federal Reserve System has similar duties and structure. Like the ESCB's Governing Council, the FOMC is the principal monetary policymaking committee of the Federal Reserve System. It consists of the seven members of the Board of Governors of the Federal Reserve System and the presidents of the twelve regional Federal Reserve Banks (though only five presidents may vote on policy at any one time).

The Federal Reserve System was established in 1914, but the System's present policymaking structure dates to 1935. Dissatisfaction with the Fed's performance during the Great Depression led to the System's reorganization, mandated by the Banking Act of 1935, which substantially increased the policymaking authority of the Board of Governors at the expense of the Reserve Banks. A policy role for the Reserve Banks was retained, however, primarily through the membership of Reserve Bank presidents on the FOMC.

The shift in the balance of power within the Federal Reserve System reflected a move away from decentralized decision making, concentrated in the quasi-private Federal Reserve Banks, to centralized, public control of monetary policy. At the same time the Board of Governors was given more authority within the Federal Reserve System, the White House

assumed a larger role in fixing the monetary regime and began to pressure the Federal Reserve to pursue the Administration's policy objectives. [1]

The concentration of power within the Board of Governors, and the increased monetary policy role assumed by the Administration, reflected a common view that the decentralized structure of the Federal Reserve System and the private-sector role in policymaking was flawed. Marriner Eccles, whom President Roosevelt selected to head the Fed's Board of Governors, advocated the setting of monetary policy by public officials located in Washington whose allegiance was solely to the national interest (Eccles 1966, pp. 170-72).

More recent appraisals of Federal Reserve monetary policy during the Great Depression have similarly attributed at least some of the Fed's failures to the System's decentralized structure. Friedman and Schwartz (1963), for example, argue that policy deteriorated when the Federal Reserve Banks outside of New York were given an increased policymaking role in 1930. This, according to Friedman and Schwartz, increased the authority of Reserve Bank officials who lacked experience, had parochial views of policy, were jealous of New York's size and power, and were inclined to oppose any policies advocated by officials of the New York Bank.

Eichengreen (1992) also blames the Fed's contractionary monetary policy during the Great Depression on the System's decentralized structure. But, instead of emphasizing personalities, Eichengreen argues that competition between the Reserve Banks for gold reserves caused policy to be less responsive to the Great Depression than it would have been had the Reserve Banks cooperated or if absolute authority for policy had been held by a governing board. Eichengreen cites this failure of decentralization as a "cautionary tale" for Europe, warning that central bank pursuit of national objectives could prove destabilizing during the transition to a

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[1] The Banking Act of 1935 did, however, remove the Secretary of the Treasury and Comptroller of the Currency from the Federal Reserve Board, where they had served as *ex officio* members. I argue below that this removal had little immediate impact because the Treasury secretary continued to exert considerable influence on the Fed after 1935. It is, however, doubtful that the Fed could have reasserted its independence after World War II had the Treasury secretary been a member of the Fed's Board of

single currency, and suggests that national central banks should be no more than branch offices, if not eliminated entirely, once monetary unification is complete.

Even with the reforms of 1935, Federal Reserve System critics argue for still greater concentration of monetary policymaking authority. Legislation introduced in Congress as recently as 1991 would have eliminated the FOMC, and thereby relegated the Federal Reserve Banks to operations offices with their presidents merely advising the Board of Governors on policy matters.[2]

In this paper I will argue that decentralization of authority per se was not primarily responsible for the Fed's disastrous monetary policy during the Great Depression or for later mistakes. Parochialism and competition among the Reserve Banks played a role, but these were neither the principal cause of the Fed's mistakes nor were they uncorrectable – indeed the Banking Act of 1935 largely eliminated the ability of individual Reserve Banks to pursue independent objectives. Instead, I argue, the Fed's policy blunders during the Depression were caused primarily by the System's allegiance to the gold standard and the use of flawed theories and operating procedures. Neither cause stemmed from the Fed's structure or changes to it. Indeed, the rise of inflation in the 1960s and 1970s occurred despite increased centralization of monetary policy authority, and largely was a result of the Fed using the same flawed approach it had employed during the Depression. One lesson of the Federal Reserve experience is that mistakes can occur regardless of a central bank's organizational form.

I claim also that the decentralized organization of the Federal Reserve System offers a number of advantages that enhance the quality of policymaking. Specifically, the present organization of policy authority within the Federal Reserve System gives the Fed a measure of

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Governors. Thus, over the long term, U.S. monetary policy may well have been quite different if the Treasury secretary had retained a seat on the Board.

[2] Senate bill S. 1611, "The Monetary Policy Reform Act of 1991." In 1993, legislation was introduced in the House of Representatives that would have mandated presidential appointment and Senate confirmation of Federal Reserve Bank presidents: H. R. 28, "The Federal Reserve Accountability Act of 1993." Neither bill was reported out of committee.

political independence without substantially lessening the System's accountability. And, at the same time that the participation of Reserve Bank presidents in formulating policy provides political independence from without, it also grants a measure of intellectual independence from within. The principal benefit of the participation of Reserve Bank presidents in monetary policymaking is commonly thought to be the collection and analysis of regional economic information. However, by fostering independent economic research within the System, the Fed's decentralized structure also promotes a competition of ideas and critical analysis of policy which gets a hearing through the membership of Reserve Bank presidents on the FOMC. This, I argue, is the main benefit of the Fed's regional system, and it suggests that some degree of decentralization is desirable.

In the next section, I present an overview of how the structure of the Federal Reserve System has changed over time, focusing on the formal role of the Federal Reserve Banks in monetary policymaking. Next, I examine monetary policy before 1935, discuss important conflicts between the Reserve Banks and Federal Reserve Board, and consider in particular whether decentralization caused the Fed's mistakes during the Great Depression. I then turn to the modern period. The Banking Act of 1935 substantially concentrated authority within the Fed's Board of Governors, but in retaining a role for the Reserve Banks, the System's structure provides a measure of insulation from political pressures and promotes internal policy debate. I again focus on conflicts between the Reserve Banks and the Board of Governors, and argue that the Fed's structure encourages a competition of ideas and ensures that major advances in economic research will influence monetary policymaking. Finally, I attempt to draw lessons for the European Central Bank from Federal Reserve history.

## The Evolution of Reserve Bank Input into Federal Reserve System Monetary Policy

The extent to which Federal Reserve Banks, individually or collectively, have substantively affected Federal Reserve System monetary policy has varied considerably over time. Legislated changes in the System's organization, but also changes in leadership, both of the

Reserve Banks and the Federal Reserve Board, largely explain changes in the role of the Reserve Banks in formulating policy.

The Federal Reserve System was designed as an organization of quasi-autonomous regional bankers' banks. By the early 20th century, regional credit markets in the United States had become highly integrated (see James 1978). Still, the Fed's founders believed that enough disparities in credit conditions and needs remained to warrant the establishment of regional Reserve Banks, each with its own locally-set discount rate.

In making explicit that the Federal Reserve was not a "central bank," Congress also reflected America's long-standing aversion to concentration of financial power. Congress sought particularly to limit the power of private New York City financial interests. But, at the same time, there was little support for establishing a public central bank headquartered in Washington D.C. The organization of twelve regional Reserve Banks, privately owned and operated, but with an overseeing government board, was thus a compromise.[3]

For practical purposes, the Federal Reserve Act left the public side of the Fed – the Federal Reserve Board – weak. Its authority was not clearly defined, and its early members had neither stature nor leadership qualities.[4] The Federal Reserve Banks, especially the Federal Reserve Bank of New York, by contrast, held the balance of power. The Reserve Banks held the System's assets and dealt with the System's customers – member commercial banks (who also formally owned the Reserve Banks), the U.S. Treasury, and foreign central banks. The Reserve Banks also initiated the financial transactions that would later evolve into the primary means of implementing monetary policy.

The Federal Reserve Act required all federally chartered (i.e., "national") banks and any state-chartered banks that chose to join the Federal Reserve System to purchase stock in their

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[3] The Federal Reserve Act specified only that between eight and twelve Reserve Banks were to be established, with their number and locations determined by an organizing committee.

[4] In formal protocol, Federal Reserve Board members ranked equal to assistant secretaries of cabinet departments (Wicker 1966, pp. 6-7).

regional Federal Reserve Bank. In return, the member banks would have access to the Fed's services – check clearing facilities, coin and currency supply, and the discount window. Member banks would also earn a dividend on their investment and have a say in the management of the Federal Reserve Bank through their opportunity to elect six of the nine members of the Reserve Bank's board of directors. To this day, member banks purchase stock in the Federal Reserve Banks and elect six of the nine board members, though legislation has reduced the influence of private-sector financial interests on Federal Reserve Bank boards of directors.[5] And, since 1980 Federal Reserve services have been available to all depository institutions.

The last major legislated revision of the Federal Reserve System's functional organization occurred in 1935. The Banking Act of 1935 established the present form of the FOMC, as well as the rules by which the discount rate and reserve requirements are set. At the same time, the legislation changed the titles of the chief executive officers of Federal Reserve Banks from "governor" to the less prestigious title "president," while reconstituting the Federal Reserve Board as the Board of Governors of the Federal Reserve System, each of whose members hold the title "governor." The Banking Act further made clear the role of the Board of Governors in approving the appointment of Federal Reserve Bank presidents, Federal Reserve Bank budgets, and generally overseeing Reserve Bank operations. The act also specified that the Board of Governors represent the Federal Reserve System in all dealings with foreign central banks and governments.[6] Finally, to preserve an element of regional diversity, the Banking Act

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[5] Three of the nine directors of each Reserve Bank, including the chairman, are appointed by the Federal Reserve Board, with the other six elected by the member banks. Originally, the Federal Reserve Act required that the chairman be a person of "tested banking experience." Three of the six directors elected by member banks could be bankers, while the other three were required to be "actively engaged in their district in commerce, agriculture or some other industrial pursuit." An amendment to the Federal Reserve Act in 1977 changed this provision to read that such directors were to be selected "with due but not exclusive consideration to the interests of agriculture, commerce, industry, services, labor and consumers." It also removed the provision that the board chairman be a person with banking experience. See Moore (1990, pp. 25-26).

[6] Before 1935, most relations with foreign central banks had been handled by the governor of the Federal Reserve Bank of New York, which had long irritated Federal Reserve Board members. By changing the titles of the chief executive officers of Federal Reserve Banks from "governor" to "president," titling all members of the Board of Governors as "governors," and stating explicitly that relations with foreign central

required that no two members of the Board of Governors come from the same Federal Reserve district.[7]

The Banking Act of 1935 retained a monetary policymaking role for the Federal Reserve Banks, both through membership of Reserve Bank presidents on the FOMC and in the setting of the discount rate. The FOMC consists of the seven members of the Board of Governors and the twelve Reserve Bank presidents. Collectively, however, the presidents have just five votes, which rotate among the Banks, except that the New York Bank president always has a vote and serves as FOMC vice chair.

The Federal Reserve Act authorizes each Reserve Bank to establish its own discount rate, subject to Board approval. The Fed's founders believed that to serve the needs of commercial activity throughout the country, it might be appropriate for the discount rate to vary from region to region. Although the Reserve Banks quickly discovered that they could not set their discount rates independently of one another, Reserve Bank discount rates were not always uniform across districts, especially in the System's early years. To this day, the Reserve Banks formally initiate changes in their discount rates, though the Board of Governors effectively determines the rate through its authority to ratify rates established by the Reserve Banks. Except for an occasional delay of a day or two, the rate is now uniform across districts. Still, Reserve Bank boards of directors sometimes request permission to change their discount rate as a signal to the Board of Governors of a desire to change monetary policy.

While the formal organizational structure of policymaking within the Federal Reserve System has not changed since 1935, the influence of the Federal Reserve Banks on policy has perhaps been less static. The president of the Federal Reserve Bank of New York has always played an important role. The New York Bank implements open-market policy and foreign

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banks were the province of the Board of Governors, the Banking Act of 1935 clearly demoted the Reserve Banks relative to the Federal Reserve Board.

[7] This provision seems to have had little effect on the President's selection of Board members, as various nominees have been assigned to districts other than the ones in which they reside.

exchange market intervention for the System as a whole, is responsible for supervising New York bank holding companies, and operates a major share of the payments system. At times, however, various members of the FOMC, including the New York Fed president, the chairman of the Board of Governors, and other members, have had more or less influence on policy than at other times. To a great extent, these ebbs and flows of power have reflected personalities, as well as economic conditions and the strength of arguments put forward by individual members. In short, the influence of the Federal Reserve Bank presidents cannot be understood simply by examining the Federal Reserve Act and its amendments.

## Monetary Policymaking Before 1935

This section reviews the Fed's early history, focusing on the development of a national monetary policy and the interactions between the Federal Reserve Banks and the Federal Reserve Board. Conflicts arose between the Reserve Banks and the Board almost as soon as the Fed was established. Early disagreement centered on the setting of Reserve Bank discount rates – specifically whether the Board had the power to dictate a Reserve Bank's rate. Later, the Board sought to direct open-market operations in government securities, after the impact of such operations on the money market became evident. Conflict between the Banks and the Board, and also among the Banks themselves, are pivotal in a number of explanations of the Fed's policy failures during the Great Depression.

### *The Fed's Design*

The Federal Reserve System was established to overcome faults in the banking and payments system that were thought to produce recurring financial crises and inefficiencies in making payments. There was no conception of monetary policy in the sense we think of it today. The Fed was intended to operate within the context of the gold standard, and gold, not the Fed, was expected to determine the value of the dollar as it had done before the Fed's establishment.

While the gold standard would continue to serve as the long-run monetary anchor, the Fed was designed to provide short-run flexibility in the supplies of currency and bank credit.

Financial crises were widely viewed as the product of an "inelastic currency," i.e., a money supply that failed to expand or contract to accommodate variation in demand.[8] A means of rapidly supplying large amounts of currency was key to most reform proposals, mirroring private initiatives to create currency substitutes during banking panics.[9]

The Federal Reserve System was created to provide a means by which currency and bank reserves could expand and contract automatically with changes in demand. Member banks hold deposits with Federal Reserve Banks to meet statutory reserve requirements as well as to provide final settlement for payments. To accommodate an increase in demand for credit or currency, a bank could re-discount short-term commercial loans with their Federal Reserve Bank, and thereby acquire either additional reserve deposits or Federal Reserve notes.[10] By linking the extension of new reserves and currency to the re-discount of short-term commercial loans, the Fed's founders sought to ensure that the currency stock and bank reserves were sufficient to accommodate real economic activity without being inflationary.[11]

In addition to extending currency and reserves through the discount window, the Federal Reserve Banks were authorized to engage in open-market purchases and sales of bankers acceptances and U.S. government securities. Reform proponents sought the development of an active market in bankers acceptances in the United States to compete with the London market, and so provided a means by which the resources of Federal Reserve Banks could be used to

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[8] In the so-called "National Banking Era," of 1863-1914, the nation's currency consisted of coin, silver certificates, notes issued by the federal government during the Civil War ("greenbacks"), and notes issued by federally-chartered banks, which were limited by the par value of government bonds banks held as collateral. The stock of currency was thus rather inflexible, whereas the demand for currency fluctuated widely over a seasonal cycle, with the business cycle, and whenever the solvency of commercial banks, and hence the value of bank deposits, was questioned.

[9] The activities of clearinghouses are the most noteworthy. During panics, clearinghouses extended credit for clearing payments to member banks by issuing clearinghouse certificates collateralized by bank assets. In later panics, small-denomination certificates made their way into public use as currency substitutes. See Dewald (1972), Gorton (1985), and Timberlake (1984) for further discussion of clearinghouses.

[10] Most commercial loans were made on a discount basis. Hence when the Fed purchased such loans from member banks, they were "re-discounted."

[11] This self-regulating extension of currency and reserves to accommodate the needs of commerce later became known as the "real bills doctrine." On the reform proposals underlying the Federal Reserve Act, see Friedman and Schwartz (1963, pp. 168-73), Timberlake (1978, pp. 186-206) or West (1977).

provide a demand for acceptances. In authorizing the Reserve Banks to buy and sell government securities, the Fed's founders sought to provide the Banks with a source of revenue in case discount loans and acceptances failed to generate sufficient income for the System to cover its expenses and pay dividends to its stockholders, the member banks (Chandler 1958, p. 76). The Fed's founders did not conceive that open-market operations in government securities would be a means, let alone the principal means, by which the Fed could manipulate bank reserves, credit, interest rates or the money supply for macroeconomic policy purposes.

The discount rate, not open-market operations, was expected to be the principal instrument of Federal Reserve policy. The Federal Reserve Act, however, provided little guidance on how the rate was to be determined, stating only that each Reserve Bank is authorized "to establish from time to time, subject to review and determination of the Federal Reserve Board, rates of discount ... which shall be fixed with a view of accommodating commerce and business."

Lacking specific instructions, Reserve Bank officials initially followed orthodox principles in setting their discount rates. They determined that the discount rate should be a penalty rate, i.e., set above market rates, and that in fixing the rate, first priority must be preservation of the gold standard.

The ultimate check on the activities of a Reserve Bank was its gold reserve requirement. Each Reserve Bank was required to maintain gold reserves equal to at least 40 percent of its note issue and to 35 percent of its deposit liabilities.[12] It seemed well understood that, should a reserve deficiency threaten, the discount rate must be set at whatever level was necessary to restore adequate reserves. Normally, however, discount rates were expected to be penalty rates, and typically were so until the United States entered World War I.

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[12] In addition, Reserve Banks were required to hold collateral in the form of commercial loans re-discounted for member banks equal to the amount of currency they issued.

*World War I and the Development of Monetary Policy*

With Reserve Bank discount rates set above market rates, there was little demand for Fed credit when the System began operations. A requirement that Federal Reserve Bank note issues be fully backed by rediscounted paper as well as a gold reserve further limited the Fed's early note issuance. Although the collateral requirement was loosened in 1917, Fed credit outstanding remained small until America entered World War I and the Fed became a source of government seigniorage.

The Federal Reserve Banks purchased only small amounts of government securities during the war, but their loans to member commercial banks expanded substantially. The Federal Reserve Act was modified in 1916 to permit member banks to borrow directly from the Fed against their holdings of eligible paper, which included government securities. During the war, the Reserve Banks established preferential rates for advances secured by government securities at levels that guaranteed profits for banks that financed their holdings by borrowing from the Fed. In May 1917, when preferential rates were begun, Federal Reserve credit outstanding totaled $350 million and member bank reserve balances totaled $735 million. By the end of 1919, Fed credit outstanding had increased nearly ten-fold, to $3,292 million, while reserve balances had risen to $1,890 million (a large increase in Federal Reserve notes outstanding explains how total Fed credit could exceed reserve balances). This expansion of Fed credit was accounted for largely by an increase in loans to member banks, 95 percent of which were collateralized by government securities (Chandler 1958, p. 118).

The Fed retained preferential discount rates on government securities after war's end to support continued Treasury funding. By late 1919, however, the Reserve Banks had become increasingly concerned about their falling reserve ratios, as well as continued high inflation, and collectively they began to press for higher interest rates and an end to preferential rates on loans backed by government securities. In November, the Banks proposed increases in their discount rates for the first time since early 1918. Treasury Secretary Carter Glass urged the Federal

Reserve Board to reject the Reserve Bank requests until after a new Treasury debt issue in January 1920.[13] But, while the Federal Reserve Board was willing to wait, the Reserve Banks were not, and the Board chose to side with the Banks and approve an increase in rates (Chandler 1958, p. 152).

In January 1920, however, the Federal Reserve Board followed the Treasury's recommendation in rejecting a request from the New York Fed to raise its discount rate again and to end the preferential rate on loans backed by Treasury certificates. At the Treasury's urging, the Board instead instructed the New York Fed to raise its rate to 6 percent on commercial paper-backed loans, but retain a rate of 4.75 percent on loans backed by Treasury certificates. The New York Bank's directors reluctantly acquiesced. Thus, on two occasions in late 1919 and early 1920, when the Federal Reserve Board (and Treasury) disagreed with the Reserve Banks about the appropriate course of policy, the Board and the Reserve Banks each prevailed once.

More discount rate increases followed the January hike, and by June 1920 the New York Bank rate stood at 7 percent. Despite declining economic activity, deflation, and criticism of their policies, the Reserve Banks maintained their discount rates at 7 percent until April 1921. Fed officials apparently had two objectives in mind: 1) to restore Reserve Bank gold reserves to comfortable levels, and 2) to retire Federal Reserve credit that had been extended against government debt, which System officials viewed as inflationary. These objectives, of course, reflected the Fed's founding principles of preserving the gold standard and restricting the growth of Federal Reserve credit to the financing of short-term commercial loans, i.e., "real bills." Wartime priorities had forced a retreat from these principles but they had not been abandoned. It was not long thereafter, however, that the development of new procedures brought a more activist policy strategy that called old guidelines into question.

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[13] As a member of Congress, Glass had co-authored the Federal Reserve Act and was known as the "father" of the Federal Reserve System.

*Open-market Operations and Benjamin Strong's Monetary Policy*

Chandler (1958) provides the standard account of the Fed's "discovery" of open-market operations. According to Chandler, the post-war contraction of Federal Reserve credit left the Reserve Banks with insufficient revenue to cover their expenses, let alone pay dividends to member banks. In November 1921, the Reserve Banks individually began to purchase government securities to augment their earnings. Because of insufficient markets in their home cities, several of the Reserve Banks arranged to purchase securities in the New York market, with the New York Bank acting as their agent (Chandler 1958, p. 77).

The Reserve Banks, particularly New York, observed the influence that their purchases of securities had on market rates and credit conditions, as did the Treasury Department. The Treasury complained to the Fed that its purchases made it difficult to price new issues and carry out other operations (Chandler 1958, pp. 209-210). The Conference of Reserve Bank Governors responded by agreeing not to purchase more securities than were needed to cover Reserve Bank expenses and, more importantly, to inform the Treasury when they intended to enter the market. Furthermore, the Banks established a Governors Committee to coordinate and execute their individual purchases and sales. The Committee consisted of the governors of five Reserve Banks, with the New York Bank's governor – Benjamin Strong – its permanent head. Strong, according to Chandler (1958), was the first Fed official to comprehend the impact of open-market operations on the money market and credit conditions, and the first to reject Reserve Bank earnings as a criterion for engaging in such operations.

Upon observing their growing use by the Reserve Banks, and under pressure from the Treasury, the Federal Reserve Board sought to establish its authority over open-market operations. On April 7, 1923, the Board notified the Reserve Banks that it was abolishing their Governors Committee, and replacing it with an Open Market Investment Committee to come under the general supervision of the Federal Reserve Board. Although the new committee was to consist of the same five Reserve Bank governors that had formed the Governors Committee, in

setting up the OMIC, the Board sought to make clear its right to establish the criteria for engaging in open-market operations and to supervise those operations.

Strong was on an extended leave of absence when the Federal Reserve Board exerted its authority, and though he disagreed with the decision, was unable to prevent it. In the event, however, Strong retained considerable control over open-market operations as head of the OMIC. Strong returned to work in late 1923, and at a meeting of Reserve Bank governors in December of that year, he announced the beginning of a new program of large-scale open-market purchases.

Under Strong's direction, the Fed made substantial purchases of government securities in 1924 and again in 1927. The motivation for these operations has been debated. In a recent book, Toma (1997) argues that, as before, the Fed was motivated by earnings, and government security purchases merely offset declining discount loans to hold the Fed's stock of earning assets constant. Chandler (1958), Friedman and Schwartz (1963), Meltzer (1997), and Wicker (1966), however, all argue that Strong was motivated by a desire to influence money market conditions to achieve general policy objectives, but these authors disagree on what those general objectives were.

Friedman and Schwartz (1963) contend that Strong sought to stabilize domestic economic activity and that open-market purchases in 1924 and 1927 were made to promote recovery from recessions (see also Fisher 1935, pp. 517-20). Wicker (1966) challenges this view, however, arguing instead that Strong's principal aim in both 1924 and 1927 was to encourage gold to flow toward Britain by lowering U.S. interest rates relative to those in London. Chandler (1958) and Meltzer (1997) contend that both domestic stabilization and international considerations were important and Wheelock (1991) reports econometric evidence consistent with their conclusion.

Whatever were Strong's motives, his use of open-market operations generated considerable controversy within the Federal Reserve System. The open-market purchases of 1927 were especially controversial. In July of that year Strong met with the governors of the

Bank of England, Bank of France and the German Reichsbank to discuss the international monetary situation. An increase in open-market purchases followed the meeting, presumably as part of an agreement in which the Fed would attempt to repel gold inflows by lowering U.S. interest rates.

Strong's initiative irritated the Federal Reserve Board – whose members had not even been informed of the meeting of central bankers – and a minority, led by Adolph Miller, voted to oppose the purchases. Some of the Reserve Banks, most notably the Chicago Bank, also opposed Strong's plan, arguing that it would promote inflation or speculation. When the other Reserve Banks reduced their discount rates as part of Strong's initiative, the Chicago Bank refused, and lowered its rate only when ordered by the Federal Reserve Board. This conflict illustrates the differences in both the objectives of policy between the Board and the various Reserve Banks, and in their views about the efficacy of central bank actions. The New York Bank favored an activist open-market policy, designed to affect international gold movements and spur domestic activity. Most members of the Board and officials of several of the other Reserve Banks, however, preferred that Federal Reserve credit be extended passively through discount-window lending against real bills, as banks sought reserves to accommodate commercial and agricultural lending. Outside New York, there appears to have been little interest in taking actions to facilitate international monetary relationships.

Ill health forced Strong to take another leave of absence in early 1928 and he died that October. The conflicts over policy that emerged in 1927 became even more stark in 1928 and 1929, when the Reserve Banks and Federal Reserve Board disagreed about how to respond to stock market speculation. Then, during the Great Depression, the New York Bank became isolated when a majority of the Reserve Banks opposed New York's initiatives to promote economic recovery.

*Stock Market Speculation*

The Federal Reserve Board's vote to force the Federal Reserve Bank of Chicago to reduce its discount rate in 1927 revived questions about the division of authority between the Board and the Banks over the setting of discount rates. In 1928, Fed officials throughout the System agreed that policy should be tightened in response to increasing stock market speculation, and so open-market sales and discount rate increases were undertaken. In 1929, however, disagreement over how best to halt the flow of credit to the stock market without doing unnecessary damage to economic activity again divided the Board and Reserve Banks.

To quell stock market speculation, the Federal Reserve Board promoted a policy of "direct action" – essentially closing the discount window to banks that made stock market loans. The Board attempted to enforce this policy by instructing the Reserve Banks to report on how they monitored the use of Federal Reserve credit supplied through the discount window and the methods the Banks employed to prevent improper use of their credit facilities.[14]

New York Fed officials had long argued that it was not possible to control the use of Federal Reserve credit, even by requiring that discount window loans be secured by short-term commercial loans. They argued that the Board's plan would not accomplish its objective, and could prove too draconian because banks would turn to other sources of funds or restrict credit to all customers. Other Reserve Banks reported that it was practically impossible to determine the cause of any specific borrowing request it received from a member bank, and that closing the window to banks that held security loans would force costly portfolio adjustments on member banks (see Chandler 1971, pp. 59-62).

Instead of direct action, the Reserve Banks favored further discount rate hikes. The New York Fed's directors voted on February 14, 1929 to increase the Bank's discount rate from 5 to 6 percent, but this increase, and several other requests, were denied by the Federal Reserve Board.

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[14] On "direct action," see Chandler (1971, pp. 54-70), Meltzer (1997), or Wicker (1966, pp. 129-43).

Only several months later was a compromise reached. Once again disagreement over policy generated controversy about where the balance of power lay within the System. [15]

*The Great Depression*

By almost any measure, the monetary policy of 1930 to 1933 was a disaster: the money supply and price level both fell by one-third, *ex post* real interest rates rose well into double digits, and banks failed by the thousands.

The most prominent explanation for the Fed's behavior during the Great Depression is that of Friedman and Schwartz (1963). They contend that the death in 1928 of Benjamin Strong removed the one person in the System who had both the understanding and the leadership ability to bring about an effective policy response to a crisis. Although Strong's successors at the New York Fed advocated expansionary policies during the Depression, they had neither Strong's stature nor personality, and could not persuade the other Reserve Banks or the Federal Reserve Board to respond vigorously to the economic collapse.

Strong's successors in New York were also unable to prevent a restructuring that gave Reserve Bank officials outside New York increased power:

> The Banks outside New York, seeking a larger share in the determination of open-market policy, obtained the diffusion of power through the broadening of the membership of the Open Market Investment Committee in March 1930 to include the governors of all the Banks. Open-market operations now depended upon a majority of twelve rather than of five governors and the twelve 'came instructed by their directors' rather than ready to follow the leadership of New York as the five had been when Strong was governor. (Friedman and Schwartz 1963, p. 414)

Friedman and Schwartz (1963, pp. 415-16) blame this "diffusion of power" for the Fed's mistakes during the Depression:

> A committee of twelve men, each regarding himself as an equal of all the others and each the chief administrator of an institution established to strengthen regional independence, could much more easily agree on a policy of drift and inaction than on a coordinated policy involving the public assumption of responsibility for decisive and large-scale action. There is more than a little element of truth in the jocular description of a committee as a group of people, no one of whom knows what should be done, who

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[15] See Meltzer (1997) for more detail about the sources and nature of conflicts between the Federal Reserve Board and Federal Reserve Banks during this period.

> jointly decide that nothing can be done. And this is especially likely to be true of a group like the Open Market Policy Conference, consisting of persons from widely separated cities, who share none of that common outlook on detailed problems or responsibilities which evolves in the course of long-time daily collaboration.

From this perspective, a lesson of the Great Depression would seem to be that decision-making authority should be concentrated in a single, small group whose members share common goals and work for common interests. This interpretation suggests that the move in 1935 to centralize monetary policy authority within the Board of Governors was an appropriate reform, and perhaps should have gone further in reducing the role of Federal Reserve Bank presidents.

Other explanations of the Fed's policy errors during the Great Depression place no blame on the Fed's structure, however. And, apart from Friedman and Schwartz (1963), other explanations that do blame the Fed's structure focus on problems that were corrected by the Banking Acts of 1933 and 1935. Accordingly, these interpretations do *not* support the conclusion that Reserve Bank presidents should have no role in policymaking.

Wicker (1966) and Brunner and Meltzer (1968) contend that monetary policy was little affected by the death of Benjamin Strong or changes in the Fed's decision-making structure. Wicker argues that the Fed had been motivated mainly by international considerations during the 1920s, and the Fed's failure to respond vigorously to the Great Depression did not reflect a change in policy. Rather, Wicker contends that the Fed's actions during the Depression were largely in accord with preserving the gold standard. Specifically, Fed officials feared that in the face of gold outflows any expansionary policy actions would be interpreted as inflationary and, thus, only precipitate more outflows. Benjamin Strong had been a forceful proponent of the gold standard and the Fed adopted a tight monetary policy in 1920-21 to defend its gold reserves. Thus, a similar defense in the 1930s reflected a consistent policy.

Brunner and Meltzer (1968) discount the Fed's attachment to the gold standard but, like Wicker and unlike Friedman and Schwartz (1963), Brunner and Meltzer contend that Strong's death and shifts in authority within the Fed had no substantial impact on policy. Brunner and

Meltzer argue that the Fed's mistakes can be traced to flawed operating procedures – specifically to the targeting of net borrowed (or "free") reserves (i.e., excess less borrowed reserves) and nominal interest rates. During the Great Depression, free reserves rose and market interest rates dropped, leading Fed officials to infer that monetary conditions were exceptionally easy – despite deflation, rising real interest rates and banking panics. Moreover, Brunner and Meltzer (1968) argue that Benjamin Strong had used the same erroneous indicators of monetary conditions during the 1920s. Hence, there was no change in policy associated with his death.[16]

In a recent study, Meltzer (1997) argues that the Fed's goals of domestic economic stability and restoration of the international gold standard were fundamentally incompatible. The Federal Reserve Board and the Reserve Banks, especially New York, disagreed strongly about policy. The Board maintained a strict Real Bills Doctrine view, arguing that proper administration of the discount window would supply the appropriate amount of Federal Reserve credit. By contrast, the Reserve Banks, under Benjamin Strong's leadership, developed open-market operations as the System's primary policy tool. Still, in targeting free reserves and market interest rates, the open-market strategy developed by Strong was incompatible with preserving economic stability. In short, Meltzer blames the Fed's mistakes on flawed theories and procedures, and not on the System's organization.

Like Friedman and Schwartz (1963), some other studies have concluded that the Fed's structure did affect policy during the Great Depression. Toma (1997), for example, argues that concentration of open-market policy authority within the Open Market Policy Conference, beginning in 1930, removed the incentive for individual Reserve Banks to press for open-market purchases. Although individual Reserve Banks could legally refuse to participate in System operations, they had much less scope than previously to purchase securities independently of the other Reserve Banks. Hence, the Reserve Banks could no longer easily raise additional revenues

[16] Wheelock (1991, Ch. 3) provides additional discussion of the Fed's operating procedures, Strong's policy prescriptions, and empirical evidence highlighting why free reserves were an especially poor

by buying securities in excess of what the Reserve System as a whole might choose to acquire. Toma's model of Fed behavior includes several controversial features, however, not least of which is that the Fed's only objective in making open-market operations was to generate revenue. This seems counter to the evidence presented by Chandler (1958), Friedman and Schwartz (1963) and other studies indicating that Fed officials sought macroeconomic stability.

Eichengreen (1992) also argues that Fed officials were concerned about economic stability. But, because individual Reserve Banks also sought to hold surplus gold reserves, overall System open-market purchases during the Depression were less than they otherwise would have been, and insufficient to allay the economic collapse. Chandler (1971, pp. 186-90) concurs, arguing that the individual Reserve Banks were reluctant to "relinquish control over the size and composition of their earning assets" by agreeing to System purchases of government securities. This reluctance was especially strong by late 1931 when massive gold outflows produced an unusually uneven distribution of gold holdings among the Reserve Banks.

Wigmore (1987) further supports Eichengreen's framework, arguing that a lack of cooperation among the Reserve Banks slowed and weakened the Fed's response to the Banking Crisis of 1933. In particular, Wigmore cites the refusal of the Federal Reserve Bank of Chicago to buy U.S. Government securities from the Federal Reserve Bank of New York when the New York Bank's reserves had been substantially reduced by gold outflows. Between February 1 and March 8, the New York Fed lost 61 percent of its gold reserves, while the System as a whole lost just 18 percent. Although the Federal Reserve Board could require individual Reserve Banks to lend reserves to other Reserve Banks, the Board refused to compel the Chicago Bank to provide reserves to New York until March 7, when the Board finally required loans from five Reserve Banks to the New York Bank and suspended Federal Reserve Bank reserve requirements.

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indicator of monetary conditions during the Great Depression.

*Structural Reforms*

The combination of decentralized control of System gold reserves and weakness in the Federal Reserve Board undoubtedly imparted a deflationary bias to Federal Reserve policy during the Great Depression, especially in response to banking crises in 1931 and 1933. Three pieces of legislation during the 1930s, however, lessened both the extent to which gold reserves constrained Federal Reserve operations and the extent to which individual Reserve Banks could refuse to participate in System policy actions, while they made clear the Board's dominant position in making policy.

First, the Glass-Steagall Act of February 1932 substantially eased the Fed's collateral requirement. Enacted as temporary legislation to overcome a shortage of collateral to back Federal Reserve note issues, the act permitted Reserve Banks to use U.S. Government securities as collateral. Previously, only gold or rediscounted commercial paper could back Reserve Bank note issues, and a lack of commercial paper and gold outflows limited the Fed's ability to respond to the financial crisis of 1931.[17] Although the authorization to use government securities as collateral for Federal Reserve notes was expected to be temporary, subsequent legislation made it permanent.

In lessening the Fed's collateral requirement, the Glass-Steagall Act of 1932 removed one potential barrier to open-market purchases. It did not eliminate the Reserve Banks' gold reserve requirements altogether or compel cooperation among the Banks. The Banking Act of 1933, however, made it somewhat more difficult for individual Reserve Banks to deviate from System policy, and the Banking Act of 1935 made it impossible.

The Banking Act of 1933 abolished the Open Market Policy Conference, replacing it with a Federal Open Market Committee. Although the new committee had the same makeup as

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[17] Whether or not the Fed actually was constrained by a lack of "free gold" reserves is unclear. Friedman and Schwartz (1963) contend that the Fed had sufficient gold to engage in substantial open-market purchases. Chandler (1971), however, points out that gold was unevenly distributed among the Reserve Banks. He and others argue that the Fed did feel constrained by a lack of reserves.

the OMPC – the chief executive officers of the twelve Reserve Banks – the act authorized the Federal Reserve Board to establish "regulations" for conducting open-market operations. Further, the act required any Reserve Bank choosing not to participate in a System operation to explain its decision to both the FOMC and Federal Reserve Board.

The Banking Act of 1933 was intended to make clear the Federal Reserve Board's role in establishing the criteria for making open-market operations, but it left the Reserve Banks largely in control of initiating operations and determining their size. The Banking Act of 1935 went considerably further by reconstituting the FOMC to include all members of the Federal Reserve Board of Governors as well as the presidents of the twelve Reserve Banks. Furthermore, by giving the Reserve Banks just five FOMC votes, and by making the chairman of the Board of Governors also the permanent chairman of the FOMC, the Board of Governors was given substantial control of open-market policy. The Act also required all Federal Reserve Banks to participate in all System open-market operations. Finally, the Banking Act of 1935 required Federal Reserve Banks to set their discount rates every 14 days, or more often if required by the Federal Reserve Board of Governors. This, according to Chandler (1971, p. 306), was a "clumsily-written" attempt to make clear the power of the Board to enforce particular discount rates on the Reserve Banks. In effect, under the Banking Act of 1935 individual Reserve Banks could no longer control their own reserves independent of the System as a whole. Thus, the Banking Act eliminated the apparent source of uncooperative behavior among the Reserve Banks during the Great Depression identified by Eichengreen. Fortunately, I argue, in preserving a role for the Reserve Banks in making policy, the Banking Act retained a measure of political independence for the Fed and created an environment in which internal debate of policy was encouraged.

Monetary Policymaking Since 1935

While not entirely eliminating Reserve Bank participation in policymaking, the Banking Acts of 1933 and 1935 did substantially centralize monetary policy authority within the Fed's

Board of Governors. Calomiris and Wheelock (1998) argue that this change in the institutional structure of policymaking gave the Fed an "inflation bias," but did not alter policy fundamentally. We contend that both the Fed's deflationary policy of the Great Depression and its inflationary policy of the 1960s and 1970s were largely unintended outcomes of the System's flawed operating procedures. Policymakers were guided by the same indicators of monetary conditions – market interest rates and net borrowed ("free") reserves of banks – in both periods. Because interest rates and borrowed reserves both declined sharply during the Depression, Fed officials inferred that monetary conditions were exceptionally easy, despite banking panics and deflation. They believed that the Fed had done all that it could, or should, do to promote economic recovery. Similarly, during the 1960s and 1970s, many Fed officials apparently believed that rising interest rates meant that policy was tight, despite rapid money supply growth and inflation.[18]

The Great Depression did, however, fundamentally change the environment in which monetary policy is made. The international gold standard unraveled and activist government macroeconomic policy was accepted. Without first weakening and then finally eliminating the constraint of the gold standard, changes in the Federal Reserve's organization (or Keynesian macro-policy prescriptions) could have had little effect. Under the gold standard, gold outflows would thwart attempts to hold domestic interest rates below the world level. President Franklin Roosevelt began to de-link the dollar from gold, first by allowing the dollar to float in 1933 and then fixing the dollar price of gold at a substantial dollar devaluation in 1934. Furthermore, gold payments were permitted only for international transactions with other gold standard countries, and required a license from the Secretary of the Treasury. The post-war Bretton Woods System similarly was a gold standard managed by central banks, not market forces, and thus permitted a greater degree of domestic monetary policy freedom than was possible under the classical gold standard.

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[18] See also Brunner and Meltzer (1964; 1968), Meltzer (1994), and Wheelock (1991; 1998).

By bringing the Federal Reserve under greater political control, the Banking Acts of 1933 and 1935 helped make the Fed more responsive to pressures to pursue low interest rate policies, which were possible under the managed standard of Bretton Woods and which resulted ultimately in the Great Inflation of the 1960s and 1970s.[19] We can only speculate as to whether or not even more political control would have resulted in even higher inflation, but cross-country evidence suggests that inflation is generally higher, the less politically independent a country's central bank (e.g., Cukierman 1992; DeLong and Summers 1992).

This section examines the role of Federal Reserve Banks in monetary policymaking since 1935, with the aim of identifying instances of conflict between the Banks and the Board of Governors, and the extent to which those conflicts affected policy. Such conflicts have involved both operating procedures and fundamental principles regarding the role of monetary policy in the economy. I find few specific instances since 1935 when initiatives of Reserve Bank presidents affected monetary policy directly, and several cases when they clearly did not. However, over the long-term, some fundamental policy prescriptions first advocated by Reserve Bank presidents did influence the course of policy. The input of Reserve Bank presidents thus, at a minimum, has provided an internal forum for critical analysis of policy.

*Monetary Policy Under Board (and Treasury) Control, 1935-1951*

Besides restructuring the Federal Reserve System, the Banking Act of 1935 removed the Secretary of the Treasury and Comptroller of the Currency from the Federal Reserve Board, where they had served *ex officio*. The Administration's influence on monetary policy was, however, not weakened. Treasury Secretary Morgenthau proved willing to bully Fed officials, and the Banking Act also provided President Roosevelt with the opportunity to appoint each of the seven members of the Fed's Board of Governors. Roosevelt retained only two members of

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[19] President Nixon suspended convertibility of the dollar into gold in 1971, effectively ending the Bretton Woods System. Since 1973 the dollar has floated with no link to gold. See Calomiris and Wheelock (1998) and references therein for discussion of Federal Reserve monetary policy under Bretton Woods.

the old Federal Reserve Board, both of whom he had appointed in 1933, including the Chairman, Marriner Eccles. Roosevelt appointees were thus firmly in control of the Federal Reserve.

The Federal Reserve was largely inactive from 1934 until U.S. entry into World War II in 1941. A continuous inflow of gold caused bank reserves and the money supply to expand rapidly, despite almost no open-market operations or discount-window loans by the Fed. The Fed did, however, take one important action during the period, when it doubled commercial bank reserve requirements in three steps in 1936 and 1937.

By 1936, Fed officials had begun to fear the inflationary potential of a massive build-up of excess reserves by commercial banks. In order to reassert control over reserve growth, the Fed elected to use its authority to raise reserve requirements, doubling them in three steps from 7, 10, and 13 percent on the demand deposits of country, reserve city and central reserve city banks to 14, 20 and 26 percent, and from 3 to 6 percent on time deposits at all banks.[20]

Attendant declines in government securities prices brought swift criticism of the increase in reserve requirements from Treasury officials, who called on the Fed to hold down the yields on government securities even if that meant canceling the reserve requirement increase. Secretary Morgenthau was particularly critical of the Fed, and made several attempts to influence the conduct of monetary policy. At a meeting of the FOMC Executive Committee on March 13, 1937, for example, Fed Chairman Eccles reported Morgenthau's concern about the recent decline in government bond prices and his desire to know what the Fed would do to raise them. Although they disagreed with Morgenthau's conclusion that the increase in reserve requirements had caused the decline in bond prices, Fed officials met with Morgenthau and reassured him of

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[20] The large, money center banks in New York City and Chicago were designated as "central reserve city" banks; Federal Reserve member banks in other designated large cities were classified as "reserve city" banks, and Fed member banks located elsewhere were classified as "country" banks. These designations were held over from the National Banking era, when the level and form of required reserves for national banks depended on a bank's location. The central reserve city and reserve city distinctions were dropped in 1962 and 1972, respectively.

their desire to maintain "orderly" markets for government securities (FOMC *Minutes*, March 13, 1937).

On March 15, the FOMC met again to discuss Morgenthau's criticism of Fed policy, and agreed to make open-market purchases in the hope of forestalling more invasive action by the Treasury. Morgenthau interrupted the FOMC meeting and demanded again that the Fed act to raise government bond prices. Eccles reported to Morgenthau that the committee had agreed to make open market purchases to maintain orderly markets and would carry out additional purchases in the event of an "emergency" (FOMC *Minutes*, March 15, 1937).

Eccles' resistance to Morgenthau seems to have weakened considerably over subsequent weeks. Although absent from a meeting of the FOMC Executive Committee on March 23, Eccles communicated his desire to make further open-market purchases because government security yields were "quite out of line" with reasonable levels. Other Fed officials, however, argued that purchases were not justified. At a meeting of the full FOMC on April 3, Eccles again pressed for open-market purchases, arguing that the increases in reserve requirements had "drastically" reduced excess reserves and had "disturbed" the market for government securities (FOMC *Minutes*, April 3, 1937, p. 7).

Not all FOMC officials agreed with Eccles proposal to make open-market purchases. George Harrison, President of the Federal Reserve Bank of New York and Vice Chairman of the FOMC, argued that the Fed should not acquiesce to Treasury pressure unless economic conditions warranted open-market operations, and Harrison did not believe that open-market purchases were justified at that time. At subsequent meetings, Harrison reiterated his view that the Fed should not do the Treasury's bidding unless economic conditions warranted. He also argued that maintaining an orderly market in government securities did not simply mean holding bond prices up, but that it might also require resisting increases in bond prices.[21]

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[21] See, e.g., FOMC *Minutes*, April 4 and April 29, 1937.

Harrison's views are interesting both because they reflect his disagreement with policies advocated by Eccles and, ultimately, Morgenthau, and because they indicate how the composition of the key monetary policy committees had changed over the 1930s. Early in the 1930s, as chairman of the Open Market Policy Conference, Harrison had advocated a more aggressively expansionary policy than other OMPC members or the Federal Reserve Board members were willing to accept (Friedman and Schwartz 1963, pp. 370-83, 692-93). By the mid- to late-'30s, however, Harrison had become one of the Fed's strongest proponents of a tighter policy – not because of a fundamental shift in his views, but because the makeup of the policy committees had changed under him. And, like subsequent incidents when Federal Reserve Bank presidents opposed the policies of the Board of Governors, Harrison was unable to convince the FOMC to accept his proposals. Over the long-run, however, the FOMC chose to strike a more independent course, and Harrison's successor as President of the Federal Reserve Bank of New York, Allan Sproul, played a leading role in forging the most substantial break from Treasury dominance – the Accord of 1951.

*The Accord*

The Treasury and Federal Reserve goal of preserving "orderliness" in the market for government securities during the mid- to late-1930s became a policy of interest rate pegging during World War II. Specifically, upon U.S. entry into the war, the Fed announced that it would peg the yield on Treasury bills at 3/8 percent and maintain ceiling yields on government securities of longer maturities of up to 2.5 percent on bonds. In 1947, the Fed ended its T-bill yield peg, but ceiling yields on other government securities remained. The Fed was able to maintain this policy until 1950, when inflationary pressures caused the Fed to question the wisdom of holding government security prices artificially high. The Treasury, by contrast, remained adamant that government security prices be maintained, setting up the conflict that led to the Accord of March 1951.

Federal Reserve officials, both members of the Board of Governors and Reserve Bank presidents, all were largely of the view that interest rates had to rise and bank reserve growth had to slow to stem inflationary pressures. The officials disagreed somewhat, however, over whether to buck the Treasury's wishes. An early proponent of an independent monetary policy was Allan Sproul, president of the New York Fed. From this role and his previous experience as manager of the System's investment account, Sproul understood the government securities market and could closely monitor the reserve positions of the large New York banks. From this vantage, Sproul grew increasingly convinced that the Fed should break with the Treasury and pursue an independent monetary policy, and in October 1950 he proposed an increase in interest rates in direct opposition to the Treasury's stated position. Sproul's proposal was defeated by one vote, with Fed chairman Thomas McCabe arguing that the Fed could not raise interest rates without consulting the Treasury (Lucia 1983, p. 118).

McCabe and Sproul continued to press the Treasury for agreement to tighten monetary policy, however, leading to consultations between Fed and Treasury officials that produced the Accord. In exchange for Treasury acquiescence to higher interest rates, the Fed agreed to work to maintain order in the market for government securities. McCabe apparently also agreed to resign and was replaced as Federal Reserve Board chairman by William McChesney Martin, who had been the Treasury's chief negotiator of the Accord.

*Federal Reserve Banks in the Modern Era*

With independence, the Accord increased the responsibility of Fed officials. Suddenly the governors and Reserve Bank presidents needed information and advice to guide them in making monetary policy, which led to a revival of economic research within the System. Not only was the Board of Governors staff enlarged, but the research departments of the Reserve Banks evolved from simply collectors of regional economic statistics to analysts and advocates of monetary policy alternatives. This decentralization of research, I believe, fostered debate within

the System about the appropriate procedures and targets for monetary policy. It may also have contributed to the Fed's political independence.[22]

The most serious disagreements between the Federal Reserve Banks and the Board of Governors since the Accord have focused on the appropriate targets for monetary policy – first monetary aggregates and, more recently, the price level or inflation rate. Federal Reserve Bank presidents were the first to propose the adoption of monetary aggregate targeting and to advocate establishing price level stability as the primary goal of System policy. The presidents were far from unanimous about the merits of either course, however, and though the governors of the Federal Reserve Board have typically followed the chairman, they too have not been unanimous in their policy views.

Before the rise of monetarism or inflation targeting, however, disagreement between the Reserve Banks, specifically the New York Bank, and the Board of Governors focused on the conduct of open-market operations. In 1953, a subcommittee of the FOMC, consisting of Chairman Martin, Governor Abbot Mills and Malcolm Bryan, president of the Federal Reserve Bank of Atlanta, concluded that open-market operations should be carried out exclusively in Treasury bills, and that management of the System's investment portfolio should come under the control and supervision of the FOMC, rather than the Federal Reserve Bank of New York.

The FOMC thus adopted a "bills only" policy in early 1953 (though open-market operations remained under the supervision of the New York Bank). Sproul vehemently opposed the bills only policy, arguing that there might be times when the Fed could provide market stability by operating in longer maturity securities. He argued also that the Fed's influence on the economy lay not just in supplying bank reserves, but that the Fed could affect saving and

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[22] Curkierman (1982, pp. 393-4) argues that the quality of a central bank's research department is a "potentially important component" of the bank's independence: "A governor who is backed by an absolutely and relatively strong research department carries more weight vis-à-vis the Treasury and other branches of government."

investment by influencing (or, as Sproul said, "nudging") the yields of securities of different maturities.

Sproul forced a reconsideration of the bills only policy at a meeting of the FOMC on June 11, 1953, when just four members of the Board of Governors were present. Sproul's resolution to rescind the bills only policy carried by a vote of five to four, with the five voting Reserve Bank presidents supporting the resolution. At the next FOMC meeting, however, the bills only policy was reinstated by a vote of nine to two, with only Sproul and one other president voting against. According to Clifford (1965, pp. 288-89), apart from disagreement about the transmission of monetary policy to the economy, the majority's support for bills only stemmed from a desire to avoid any appearance of pegging yields, which might give the appearance of excessive Treasury influence, and a fear that operating in securities of all maturities would give the New York Bank too much control of System policy.

*Monetary Aggregate Targeting*

The debate over "bills only" is the most discussed controversy within the Fed during the 1950s. By the end of that decade, however, a more fundamental debate arose about how to implement monetary policy in the face of inflation, an increasing international payments deficit and variability in real economic activity.

The concerns of Federal Reserve officials that excessively rapid growth of bank reserves and monetary aggregates were causing inflation led to the Fed's rebellion against the Treasury and, ultimately, the Accord of 1951. Friedman and Schwartz (1963, p. 628) refer to the Fed's new emphasis on money supply growth as a "near-revolutionary" change in policy. Similarly, Ahearn (1963) cites Federal Reserve statements that "It is the function of reserve banking, by regulating the volume of bank reserves, to counteract the tendency for excessive swings in the volume of money," and that "The primary responsibility of the Federal Reserve System is to

determine the volume of member bank reserves.... By regulating the volume of member bank reserves, the Federal Reserve thus exerts a dominant influence on the size of the money supply."[23]

Despite these pronouncements, the Fed did not explicitly target monetary aggregates in the 1950s. Instead, the Fed reverted to its strategy of the 1920s and early 1930s in which open-market operations were used to manipulate commercial bank free reserves (i.e., excess less borrowed reserves) to achieve specific money market objectives (see, e.g., Brunner and Meltzer 1964; Calomiris and Wheelock 1998). When the Fed sought to tighten policy, it attempted to "firm" money market conditions by draining free reserves from the banking system. The extent to which interest rates increased informed the Fed as to how much tighter policy had become. Similarly, to ease policy, the Fed added to free reserves and judged monetary conditions by the extent to which interest rates declined. Importantly, however, money supply objectives did enter the free reserve projections made by Fed staff and, according to Wicker (1974, p. 173), "by controlling the reserve injection mechanism, the Federal Open Market Committee attempted to exert control over money market conditions and the annual growth of M1." The Fed could not, of course, simultaneously control both money market conditions and money supply growth, and when conflicts between these objectives arose, the Fed always gave preference to the money market over the money supply.

By the late '50s, however, the Fed's emphasis on free reserves and the money market was under attack from two Reserve Bank presidents who favored setting quantitative targets for total reserve and money stock growth. Malcolm Bryan, President of the Federal Reserve Bank of Atlanta, was perhaps the first and most sophisticated proponent of monetary aggregate targeting among FOMC members in the late '50s and early 1960s (Hafer 1997). Bryan, who had a master's degree in economics from the University of Illinois and had done additional postgraduate work at the University of Chicago in the late 1920s, was apparently influenced by

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[23] The former quote is from an article in the *Federal Reserve Bulletin*, February 1953 (Ahearn 1963, p. 34); the latter is from a Federal Reserve System response to inquiry from Britain's Radcliffe *Committee on*

the monetary economics of Milton Friedman and corresponded with him. Hafer (1997) shows that by 1957 Bryan was regularly questioning the Fed's money market strategy in FOMC meetings. Then, in 1959 Bryan began to advocate the setting of explicit targets for the growth of a seasonally-adjusted, monthly measure of total bank reserves adjusted for changes in reserve requirements that he termed "total effective reserves." Bryan argued that doing so would enable the Fed to control the money supply and, ultimately, contain inflation while minimizing monetary shocks to the real economy.

Bryan's proposals were generally supported D. C. Johns, President of the Federal Reserve Bank of St. Louis, and occasionally by some other members of the FOMC. The committee's chairman, William McChesney Martin, and its vice chairman, Alfred Hayes (President of the Federal Reserve Bank of New York), however, strongly opposed Bryan's proposals as unworkable and too "mechanical." Bryan's advocacy of monetary aggregate targeting never persuaded a majority of the FOMC, though, as Hafer (1997, p. 19) notes, "Bryan's strategy for monetary policy would resurface at another time when inflation and the policies that produced it had become unacceptable."

*Monetary Policy Since 1960*

Inflation fluctuated within a narrow range between 1952 and 1964, but then began to rise (Figure 1).[24] The U.S. international payments deficit also increased. Obviously, monetary policy was too stimulative. Fed chairman Martin viewed the payments deficit as the System's principal problem, and sought to devise policies that would reduce the deficit without choking-off domestic expansion. "Operation Twist," in which the Fed manipulated its portfolio in an attempt to raise short-term interest rates to encourage capital inflows while simultaneously holding long-term rates low to encourage economic growth, was one such policy. Beginning in 1961, the Fed also took what it believed was a more aggressively anti-inflationary stance by reducing the level of

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*the Working of the Monetary System* in 1960 (Ahearn 1963, p. 35).

free reserves (Figure 1). Money supply growth increased, however, and inflation continued to rise (Figure 2).[25]

The accelerations of money supply growth and inflation while free reserves were declining was further evidence that the level of free reserves does not accurately reflect the stance of monetary policy. This point was not lost on Federal Reserve officials. Fed governor Sherman Maisel, for example, asserted the following at a FOMC meeting in May 1966:

> When members looked at total reserves or nonborrowed reserves, either of which he took to be the principal measures of the committee's actions, they must be appalled at the committee's results.... In the five months since December 1 [1965], the committee had poured more reserves into the banking system than were furnished in the entire year.... The results did not accord with the committee's intent, its statements or sound policy.... The committee apparently had followed sub-goals such as feel of the market, net [free] reserves, or the need to offset shocks, and as a result it had moved in a direction opposite to its real aim. (FOMC Minutes, May 10, 1966, pp. 62-63)

Maisel strongly advocated setting policy in terms of a monetary target, and in 1968 he persuaded Fed chairman Martin to appoint a committee, headed by Maisel, to formulate a new policy directive. The Fed did introduce explicit reference to monetary growth into its operating instructions in 1970, but also retained its money market operating strategy – thereby setting up potential conflicts between targets.

By 1970, the federal funds rate had replaced the level of free reserves as the Fed's money market target, but this had little or no fundamental effect on policy. The Fed interpreted a rising fed funds rate as evidence of tighter monetary policy, just as it had viewed declines in free reserves before. In seeking to avoid what it saw as excessive increases and variability in the fed funds rate, the Fed permitted excessive growth and variability in the money supply and inflation. Inflation was finally brought under control only when the Fed, under Paul Volker, elected to allow wider swings in interest rates so as to check money supply growth (Figures 3 and 4).

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[24] The monthly data in Figure 1 are annualized growth rates of the consumer price index and the level of free reserves. Both series are smoothed using a centered, 13-month moving average filter.

[25] The money supply data plotted in Figure 2 are annualized growth rates of monthly figures (smoothed using a centered, 13-month moving average filter) for M1, which consists of currency in circulation and commercial bank demand deposits.

Although the Fed in 1979 adopted a policy stance that had long been advocated by the president of the Federal Reserve Bank of St. Louis and others within the System, the abrupt tightening of monetary policy in 1979 did not necessarily mean that the Fed had adopted monetarism. While interest rates were permitted to vary more widely than they had before, money supply growth also became more variable.[26] As the 1980s progressed, the velocity of money became less stable and the Fed deemphasized money supply growth in formulating its policies. By the 1990s, the Fed had abandoned money supply growth altogether in favor of fixing a target for the federal funds rate to achieve its policy objectives. Although policy now appears oriented primarily toward achieving price level stability (see, e.g., Greenspan 1998), the Fed has not formally adopted a price level target, despite the advocacy by some Federal Reserve Bank presidents that the System do so.

How much influence have Federal Reserve Banks had on monetary policy? Specifically, has the presence of independent research centers within the Reserve Banks made an impact on the formulation of policy? This question is difficult to answer because influence is hard to measure. Certainly, one can point to many instances when Reserve Bank proposals were rejected by the System as a whole. On the other hand, the Fed's increased emphasis on the behavior of monetary aggregates, if not their outright control, in the 1970s and early 1980s was advocated first by Reserve Bank presidents and supported by Federal Reserve Bank research. So too were initiatives to incorporate rational expectations into the Fed's forecasting analysis and to attach paramount importance to the goal of price level stability.[27]

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[26] Using previously unreleased documents, Gilbert (1994) finds that the Fed's commitment to short-run control of money stock growth varied over the period 1979-82. See also Poole (1982) for analysis of the Fed's operating procedures between 1979 and 1982.

[27] Federal Reserve Bank presidents give many speeches and author policy-oriented articles that receive wide attention and sometimes advocate policy positions opposed by the Fed chairman and/or a majority of FOMC members. See for example the speeches of Lawrence Roos, President of the Federal Reserve Bank of St. Louis (1976-82), advocating monetary aggregate targeting, those of Minneapolis Fed president Mark Willes (1978-80) advocating the use of rational expectations in policy forecasting, or those of Cleveland Fed president Lee Hoskins (1987-92) and St. Louis Fed president Thomas Melzer (1985-98) which advocate making price stability the sole focus of monetary policy.

At a minimum, it might be argued that the research function of the Reserve Banks has served a role in bringing alternative points of view to policy analysis and deliberations. The Fed's decentralized structure encourages the exploration of alternative positions, and the voting membership of Reserve Bank presidents on the FOMC ensures that different points will be heard and, potentially, influence policy. Arguably, the freedom to comment publicly on policy and to participate in scholarly activities makes it less likely that valid policy ideas emanating from one or more Reserve Banks will be dismissed. This freedom was tested and affirmed in the 1960s and 1970s when research of the Federal Reserve Bank of St. Louis produced conclusions that were highly critical of System monetary policy.

*Monetarism and the St. Louis Fed*

Although Malcolm Bryan and D. C. Johns failed to persuade a majority of their FOMC colleagues to accept monetary aggregate targeting in the late 1950s and early 1960s, their ideas lived on and were given particular support by research at the Federal Reserve Bank of St. Louis. Under Homer Jones, who became the Bank's Director of Research in 1958, the St. Louis Fed developed improved measures of the money stock, empirical models of the influence of monetary policy on economic activity, and persuasive critiques of current policy. Although not without objection, the St. Louis Bank was permitted to challenge System policy publicly as well as internally. One can only wonder whether such freedom, and hence such influence, would have been permitted under a more centralized structure. The Federal Reserve's Board of Governors has ultimate authority over Federal Reserve Bank expenditures including, importantly, the salaries of Reserve Bank presidents and first vice presidents. However, Reserve Bank personnel, including research staff, are not employees of the Board or subject to direct control by Board staff. This structure allows for independent analysis of policy issues to support Reserve Bank presidents in carrying out their responsibilities as voting members of the FOMC. Without freedom to conduct independent research in support of a voting member of the FOMC, monetarism might have lacked advocacy within the Federal Reserve System. Certainly, there

was no support for monetary aggregate targeting coming from the staff of the Board of Governors.

The early days of monetarism at the St. Louis Fed are described well by A. James Meigs (1976), himself a member of the Bank's research staff in the early '60s. The Bank's president, D. C. Johns, advocated defining the System's policy in terms of quantitative total reserves or money supply targets. At a FOMC meeting on February 10, 1959, for example, Johns argued that "the Committee ought to begin now – in fact it should have begun sooner – to pay more attention to what was happening to the money supply and less to what was happening day-by-day and week-by-week in terms of a reserve target of some particular figure" (quoted by Meigs 1976, pp. 442-43). By "reserve target" Johns meant free reserves. Johns' advocacy of monetary targeting was, according to Meigs (1962, p. 447), grounded both on the classical quantity-theoretic relationship between the money supply and price level in the long run, and on a notion of how money supply changes can affect economic activity in the short run: "The new element in the St. Louis position ... was a recognition that short run changes in the money stock can have adverse effects on income and employment."

Targeting the money supply was problematic, however, not least because it was measured imprecisely and at low frequency. The St. Louis Fed thus made an important contribution when two staff members, William Abbott and Marie Wahlig, produced new, high quality bi-monthly estimates of the money stock that were readily adopted by the Federal Reserve as a whole.[28] A second early, important work produced at the St. Louis Fed was Meigs' (1962) empirical demonstration of the folly of targeting free reserves. Meigs showed that a given level of free reserves could be consistent with any degree of monetary restraint in that changes in free reserves had little correlation with changes in bank deposits and, hence, the money supply. This work constituted Meigs' University of Chicago Ph.D. thesis, which Milton Friedman supervised.

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[28] See Anderson and Kavajecz (1994) for a history of the Fed's computation of money supply data.

The most famous research produced by the Federal Reserve Bank of St. Louis was undoubtedly the so-called "St. Louis Equation," first introduced in Andersen and Jordan (1968). The "St. Louis Equation" was a simple econometric test of the relative impact of monetary and fiscal policy on the growth of nominal gross national product. The evidence in Andersen and Jordan (1968), and extended by Keran (1969) and others, indicated that money stock growth was a far more important determinant of nominal GNP than fiscal policy, and thus suggested that monetary policy – specifically the control of a monetary aggregate – was potentially a more useful tool than fiscal policy for stabilization policy. Andersen and Carlson (1970) followed up on this conclusion by constructing a small forecasting model in which changes in the money stock are a principal cause of changes in nominal spending, in stark contrast to the large econometric model being developed by the staff of the Board of Governors, in which the money stock was entirely passive.

The "St. Louis view" drew immediate fire from both the Board staff and academics, whose criticism focused mainly on econometric issues. Some of these criticism were published in the Federal Reserve Bank of St. Louis *Review*, e.g., DeLeeuw and Kalchbrenner (1969) and Melicher (1969), with rebuttals and refinements of the original work by St. Louis Fed economists and their academic supporters.

It is difficult to gauge the extent to which the Board of Governors sought to quash the policy views coming out of St. Louis. The minutes of Federal Open Market Committee meetings, i.e., the *Memoranda of Discussion*, are non-verbatim accounts of FOMC deliberations; FOMC members are permitted to read and correct the *Memoranda* before their final printing. As such, they may not fully or accurately reflect the actual discussion. Nevertheless, there is some evidence in the *Memoranda* suggesting that some FOMC members, especially members of the Board of Governors, would have preferred that the System speak with one voice – the Board's voice.

At a meeting of the FOMC in June, 1970, for example, there was a lengthy discussion concerning problems encountered with the publication of data and analysis of policy from different parts of the System. Specifically, the St. Louis Fed had reported that the money supply had grown at an annualized rate of 9 percent from February to May of that year. This figure had been widely cited as evidence that the Fed was following an inflationary course. Milton Friedman, for example, had cited the figure in a forum of academic consultants before the Board of Governors. And, Governors Daane and Brimmer reported that on recent trips to Europe "they had found the 9 percent figure ... had been widely reported and was causing a good deal of confusion," since the Board of Governors had reported much lower rates of money growth for the first and second quarters of 1970. According to Daane, "the publicity given to the St. Louis position had opened a credibility gap abroad that might be difficult to close" (FOMC Minutes, June 23, 1970, p. 26).

Other FOMC members expressed similar views. Governor Mitchell, for example, argued that "the Federal Reserve was doing itself a disservice by simultaneously publicizing such disparate descriptions of 'recent' rates of growth in money." And, "it was his personal view that the approach being followed by the St. Louis Reserve Bank was creating the mistaken impression that the system had not been doing a good job in making monetary policy" (FOMC Minutes, June 23, 1970, p. 26). Chairman Arthur Burns added that "it should be possible for the Federal Reserve to avoid excessive variety in the measurement methods it employed," and proposed forming a staff committee to examine the problem (FOMC Minutes, June 23, 1970, p. 27).

Perhaps the strongest criticism came from Governor Brimmer, who argued that "the problem went beyond that of differences in methods of measuring changes in the money supply. The St. Louis Bank now employed an approach to analysis that was competitive with that used elsewhere in the System; some day there might be thirteen different analytical approaches in the system, with the Board and each Bank going its own way. While he would not favor censorship,

he thought the staff committee should be asked to consider questions of analysis as well as of measurement" (FOMC Minutes, June 23, 1970, pp. 27-28).

Brimmer's view seems to have received little support. Burns stated that "his only criticism of the St. Louis people in the matter related to what he thought was an element of rigidity in their thinking about base periods." Maisel concurred that "the St. Louis Bank tended to stress unduly the 'correctness' of [its choice of] measurement base. Over time some of those arbitrary bases led to most peculiar analytical results." Maisel also stated, however, that "nothing should be done to interfere with free competition within the System among monetary theories" (FOMC Minutes, June 23, 1970, p. 29). In doing so, he echoed Mitchell, who said that "he would disassociate himself from Mr. Brimmer's position. A part of the character of the Federal Reserve that he would want to preserve was its ability to accommodate differences of view and philosophy, and he favored encouraging System people to use whatever analytical techniques they chose" (FOMC Minutes, June 23, 1970, p. 28).

Conclusion

Fortunately, I believe, the philosophy expressed by Governors Maisel and Mitchell in the *Memoranda of Discussion* prevailed. If the Fed had but one research department, one external publication, and one chain of command, it would have been easier to suppress challenges to the monetary policy of the central authority. Decentralization of research and decision-making fosters a climate in which diverse views can be heard. In the 1960s and 1970s, it ensured that Keynesian macroeconomics, which dominated System thinking about monetary policy at the time, would not be the only paradigm heard at the FOMC.

The Federal Reserve Bank of St. Louis continued to publish critical analyses of policy and its presidents continued to bring independent views to FOMC deliberations.[29] Over time

[29] Concern about the Fed speaking with too many, sometimes contradictory voices has led to System-wide rules requiring disclaimers on all articles written by Fed staff that identify their affiliation, and to a policy of Board staff review of certain Reserve Bank publications prior to printing. The Board has at times argued

other Reserve Banks built up their research departments and something of a competitive spirit emerged among the departments that has probably contributed to their productivity. The Reserve Banks have helped bring new theories and techniques of economic analysis to bear on monetary policy, payments system and regulatory issues, while helping enable the System to ward off transient political pressures. This is the legacy of the St. Louis research in the 1960s and early 1970s and the System's capacity to allow the Bank's advocacy of alternative policies. This outcome was not the intent of either the Fed's founders or of System reformers in the 1930s, who sought to enhance the Fed's public accountability while eliminating the possibility that minority dissent could disrupt policy. In preserving the System's federal structure and in maintaining a role for Reserve Bank presidents in policymaking, however, an environment that encouraged and supported independent analysis of policy and the airing of different points of view in the deliberative process was created.

The history of monetary policy making by the Federal Reserve System offers several lessons. First, not all mistakes are the result of a central bank's organizational form. The Federal Reserve made serious blunders during 1929-33 and again during 1965-79, despite substantial organizational reform in 1935; the Fed's structure caused neither the extremely deflationary monetary policy of the Great Depression nor the inflationary policy of 1965-79. Second, a decentralized structure can be advantageous if it fosters internal debate. The voice, and the vote, that Federal Reserve Bank presidents have in monetary policy decisions, and the independence of Reserve Bank research staffs, encourages a competition of ideas and critical analysis of policy that has the potential to enhance the quality of decisions. Decentralization can, of course, hamper policy, particularly if a minority can disrupt policy actions. Although not the principal cause of Fed errors during the Depression, through their ability to opt-out of System operations, individual Reserve Banks could interfere with the implementation of policies decided by the majority.

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for substantial changes to articles before publication and sometimes against publication altogether. To my knowledge, however, all publication decisions have ultimately been left to the Reserve Banks.

Fortunately, I believe, the Banking Act of 1935 eliminated this possibility while retaining the advantages of a decentralized system.

The history of monetary policy making by the Federal Reserve is instructive, but its applicability to European monetary union is somewhat limited by institutional differences. First, although the Federal Reserve Banks were established to represent regional interests, Reserve district boundaries do not coincide with state, congressional district or other political boundaries. This reduces the likelihood that Reserve Banks will be pressured effectively by politicians to represent local interests. In Europe, the national central banks may face greater pressure to represent national interests in monetary policy deliberations for Europe as a whole. Second, in the United States, political union and a high degree of regional economic integration, which existed even in 1914, limit the extent to which economic interests and policy preferences differ across regions. The extent of economic and political integration is less in the European Union, which would seem to increase the likelihood of interregional conflicts and, hence, pressures on EU monetary policy.

In short, a decentralized structure has probably hampered monetary policy less over the life of the Federal Reserve than one might expect it will in Europe because the Fed was established in an environment in which economic and political union had existed for over 100 years. Regional conflicts seem more likely to disrupt policy in the European System of Central Banks than it ever has in the Federal Reserve System. The remaining question, then, is whether such conflict will lead to greater concentration of decision making authority at the center or, instead, irreparable strain on the monetary union.

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Figure 1: Free Reserves and Inflation

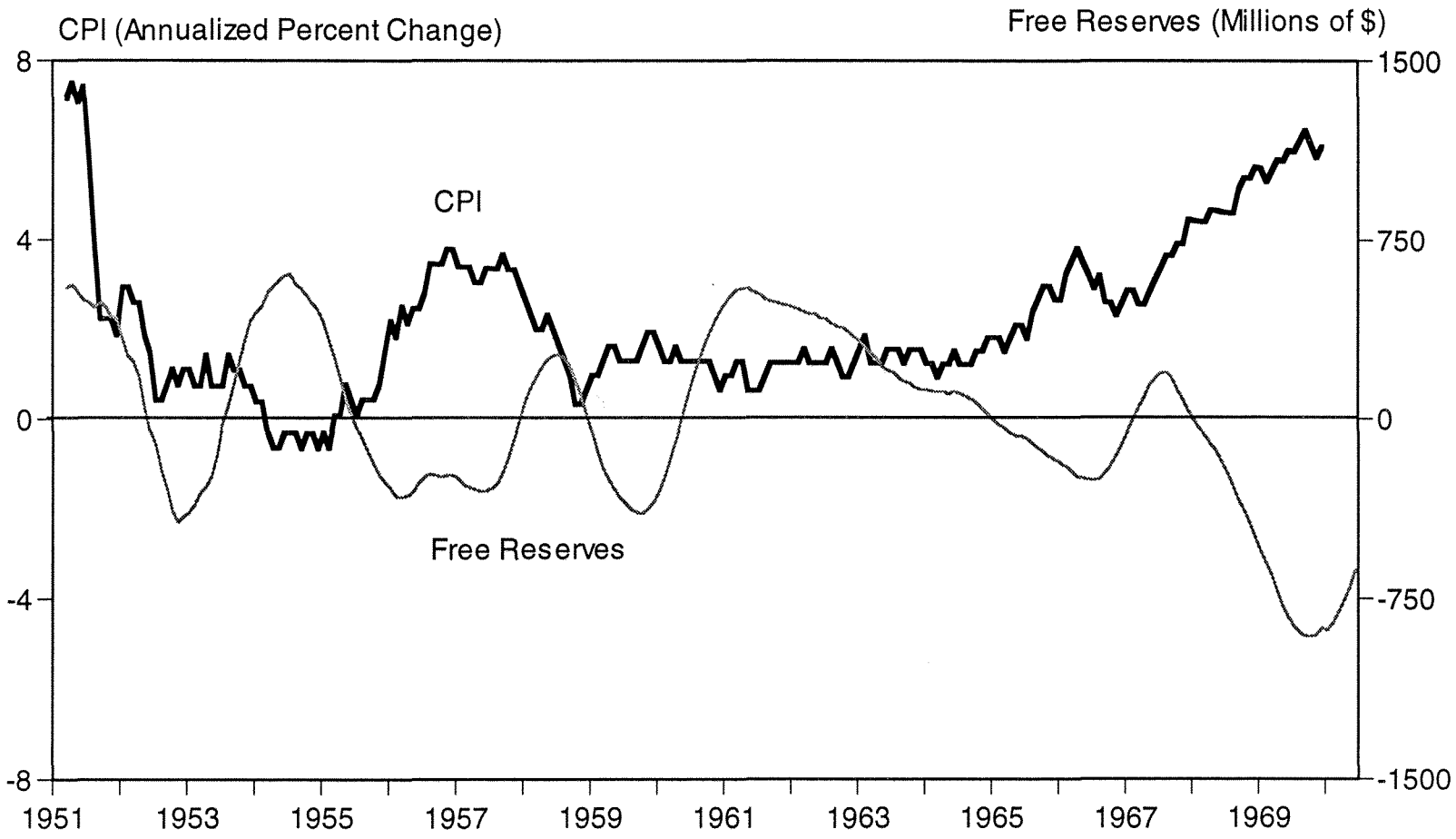

Figure 2: Free Reserves and Money Supply Growth

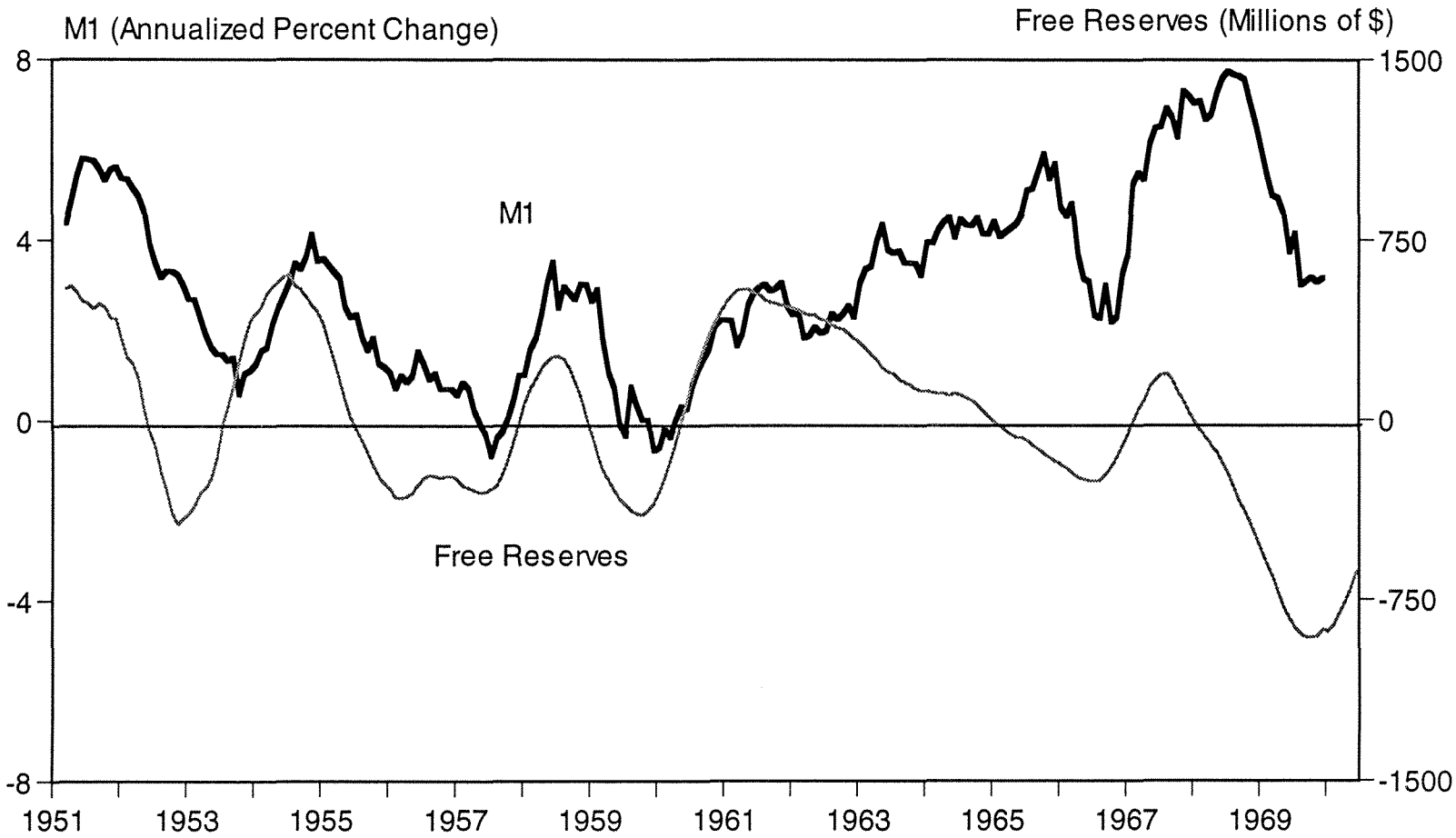

Figure 3: Federal Funds Rate and Inflation

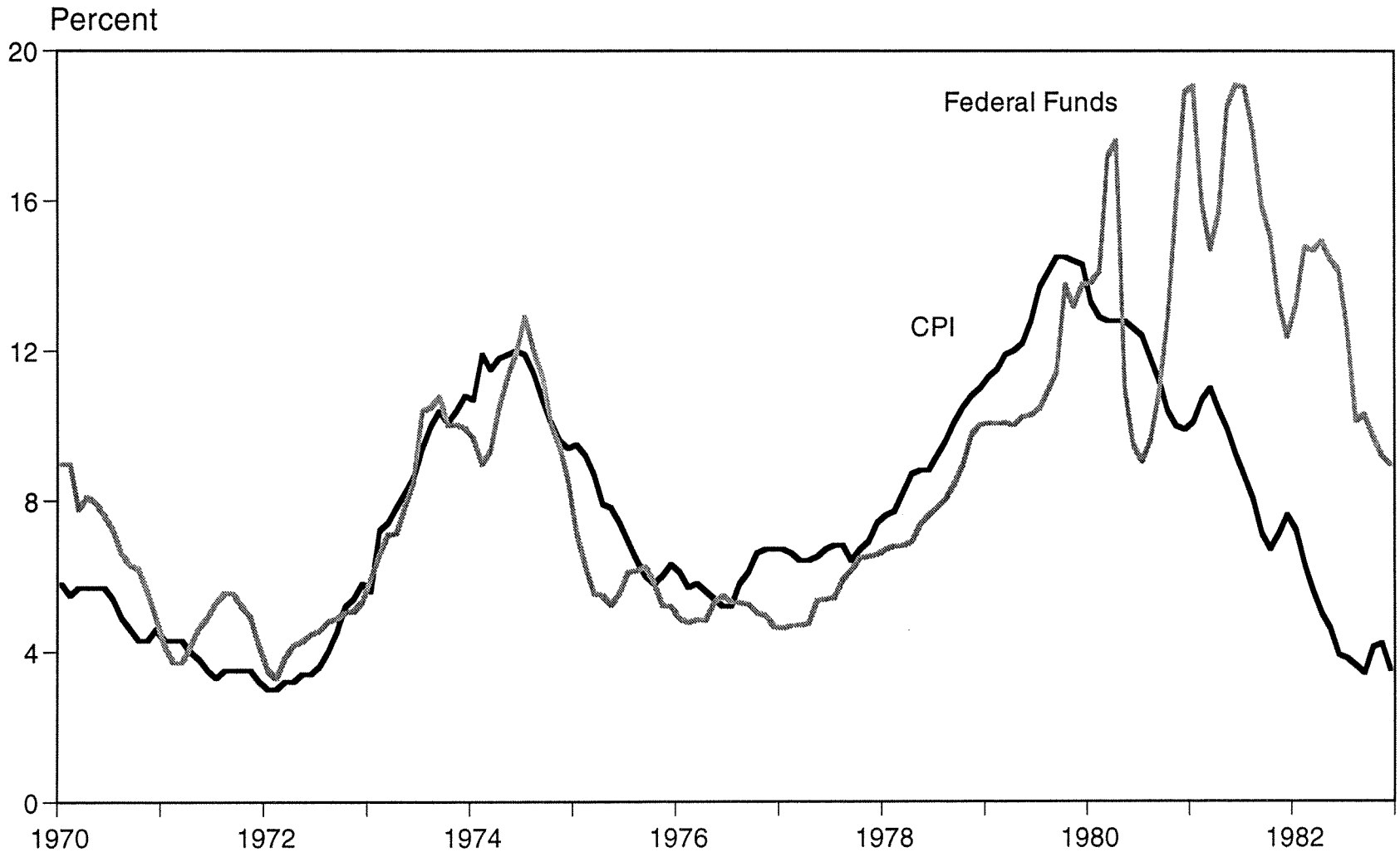

Figure 4: Inflation and Money Supply Growth