
R E V I E W

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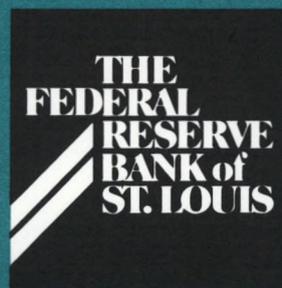
March/April 1992

3 Monetary Policy in the Great
Depression: What the Fed Did,
and Why

29 Seigniorage in the United States:
How Much Does the U.S.
Government Make from Money
Production?

41 The FOMC in 1991: An Elusive
Recovery

62 How The 1992 Legislation Will
Affect European Financial
Services



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In the first article of this issue, "Monetary Policy in the Great Depression: What the Fed Did and Why," the bodies of figure 3 (Unemployment Rate) and figure 4 (Bank Suspensions) should be switched. In addition, the "gold currency" line on figure 9 should read "gold minus currency." We regret these errors.

Federal Reserve Bank of St. Louis
Review
 March/April 1992

In This Issue . . .

During the recent recession, there has been considerable discussion of the appropriate policy response by the Federal Reserve. Monetary policy often receives close scrutiny, and recently Congress has considered legislation that would reorganize the Fed's policymaking structure. In the first article in this *Review*, "Monetary Policy During the Great Depression: What the Fed Did, and Why," David C. Wheelock examines the extent to which the Federal Reserve System's organization affected policy during the Great Depression. Some authors contend that the Fed's organization caused it to be more receptive to private interests—or to the interests of policymakers wishing to extend their bureaucratic domain—than to the public's interests. Others argue that leadership changes at the onset of the depression put authority into the hands of inexperienced officials who failed to understand the appropriate policies to counteract the depression. Wheelock finds, however, that organization affected policy little during this episode. Rather, the Fed's policies can be attributed largely to continued pursuit of a procyclical policy rule and to the gold standard regime, which proved deflationary.

* * *

In the second article in this issue, "Seigniorage in the United States: How Much Does the U.S. Government Make from Money Production?" Manfred J.M. Neumann considers one of the oldest and most interesting issues in monetary economics, "seigniorage"—the revenue associated with the creation of money. The author extends a traditional measure of seigniorage with a new measure, "extended monetary seigniorage," that he has developed. Neumann's new measure shows the distribution of seigniorage between the central bank and the Treasury. Neumann calculates extended monetary seigniorage for the United States for the period 1951-90. He estimates that the Treasury's share of seigniorage, which he calls fiscal seigniorage, has amounted to between 1 percent and 2.8 percent of federal spending. He also examines the relationship between inflation and seigniorage and estimates that seigniorage increases with inflation until the inflation rate reaches about 7 percent, then declines with further increases in the inflation rate.

* * *

In the third article in this issue, "The FOMC in 1991: An Elusive Recovery," James B. Bullard presents an overview of recent actions taken by the Federal Open Market Committee, the arm of the Federal Reserve System with the primary responsibility for monetary policy. Since 1991 was a year that began with declines in aggregate economic activity and ended with some slight gains, this article provides a case study of policymaking during the recovery phase of the business cycle.

In the context of a chronology of FOMC decisionmaking, the author focuses on two key problems faced by the Committee. One is that, because of lags in data collection and the difficulty of forecasting, it is hard for the FOMC to assess the strength of the economy at a point in time. The other is that the magnitude and even the direction of policy thrust can be a matter of interpretation. The author shows how the FOMC grappled with these two problems through the year and ended up supporting relatively steady policies during the spring, when recovery seemed likely, and relatively easy policies in the fall, when recovery seemed elusive.

* * *

In the final article in this issue, "How the 1992 Legislation Will Affect European Financial Services," K. Alec Chrystal and Cletus C. Coughlin identify and examine the impact of the "1992" regulatory changes that pertain directly to banking and other financial services. The authors view the 1992 reforms as a small step toward the liberalization of the financial services sector. The reforms will prove to be beneficial, but the extent of the gains are unlikely to be large. The reason, they say, is that virtually all of the potential efficiency gains in the financial services sector can be (or have already been) achieved by abolishing exchange controls and allowing foreign firms to enter domestic markets.

The key innovation of the 1992 legislation is the split between home country authorization and host country conduct of business rules. This dichotomy will create problems, especially regulatory complications. Whereas wholesale markets already are highly integrated, 12 quite different retail markets will continue to exist in the near future. The authors stress, however, that the advent later in this decade of a single currency for the European Community will cause pressures to revise the regulatory structure so that the conduct of business rules become homogeneous.

David C. Wheelock

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Monetary Policy in the Great Depression: What the Fed Did, and Why

SIXTY YEARS AGO the United States—indeed, most of the world—was in the midst of the Great Depression. Today, interest in the Depression's causes and the failure of government policies to prevent it continues, peaking whenever the stock market crashes or the economy enters a recession. In the 1930s, dissatisfaction with the failure of monetary policy to prevent the Depression, or to revive the economy, led to sweeping changes in the structure of the Federal Reserve System. One of the most important changes was the creation of the Federal Open Market Committee (FOMC) to direct open market policy. Recently Congress has again considered possible changes in the Federal Reserve System.¹

This article takes a new look at Federal Reserve policy in the Great Depression. Historical analysis of Fed performance could provide insights into the effects of System organization on policy making. The article begins with a macroeconomic overview of the Depression. It then considers both contemporary and modern views of the

role of monetary policy in causing the Depression and the possibility that different policies might have made it less severe.

Much of the debate centers on whether monetary conditions were “easy” or “tight” during the Depression—that is, whether money and credit were plentiful and inexpensive, or scarce and expensive. During the 1930s, many Fed officials argued that money was abundant and “cheap,” even “sloppy,” because market interest rates were low and few banks borrowed from the discount window. Modern researchers who agree generally believe neither that monetary forces were responsible for the Depression nor that different policies could have alleviated it. Others contend that monetary conditions were tight, noting that the supply of money and price level fell substantially. They argue that a more aggressive response would have limited the Depression.

Among those who conclude that contractionary monetary policy worsened the Depression, there has been considerable debate about why

¹“The Monetary Policy Reform Act of 1991” (S. 1611) would have abolished the FOMC and thereby ended the voting on open market policy by Federal Reserve Bank presidents. Although hearings on the bill were held, it was not brought to a vote before Congress adjourned at the end of 1991. The Banking Act of 1935 established the

present form of the FOMC, whose members include the Board of Governors of the Federal Reserve System and the 12 Reserve Bank presidents. Five of the presidents vote on policy on a rotating basis.

Federal Reserve officials failed to respond appropriately. Most explanations fall into two categories. One holds that Fed officials, though well-intentioned, failed to understand that more aggressive action was needed. Some researchers, like Friedman and Schwartz (1963), argue that the Fed's behavior during the Depression contrasted sharply with its behavior during the 1920s. They contend that the death of Benjamin Strong in 1928 led to a redistribution of authority within the System that caused a distinct deterioration in Fed performance. Strong, who was Governor of the Federal Reserve Bank of New York from the System's founding in 1914 until his death, dominated Federal Reserve policy-making in the years before the Depression.² These researchers argue that authority was dispersed after his death among the other Reserve Banks, whose officials were less knowledgeable and failed to recognize the need for aggressive policies. Other researchers, like Wicker (1966), Brunner and Meltzer (1968), and Temin (1989), contend that Strong's death caused no change in Fed performance. They argue that Strong had not developed a countercyclical policy and that he would have failed to recognize the need for vigorous action during the Depression. In their view, Fed errors were not due to organizational flaws or changes, but simply to continued use of flawed policies.

A second category of explanations holds that the Fed's contractionary policy was deliberate. Epstein and Ferguson (1984) and Anderson, Shughart and Tollison (1988) contend that Fed officials understood that monetary conditions were tight. Epstein and Ferguson assert that the Fed believed a contraction was necessary and inevitable. When it did act, they argue, it was to promote the interests of commercial banks, rather than economic recovery. Anderson, Shughart and Tollison emphasize even more the

Fed's interest in aiding its member banks. They argue that monetary policy was designed to cause the failure of nonmember banks, which would enhance the long-run profits of member banks and enlarge the System's regulatory domain.

AN OVERVIEW OF THE GREAT DEPRESSION

Analysts generally agree that the economic collapse of the 1930s was extremely severe, if not the most severe in American history. To provide a sense of the Depression, Figures 1-3 plot GNP, the price level and the unemployment rate from 1919 to 1939. As the figures show, after eight years of nearly continuous expansion, nominal (current dollar) GNP fell 46 percent from 1929 to 1933. Real (constant dollar) GNP fell 33 percent and the price level declined 25 percent. The unemployment rate went from under 4 percent in 1929 to 25 percent in 1933.³ Real GNP did not recover to its 1929 level until 1937. The unemployment rate did not fall below 10 percent until World War II.⁴

Few segments of the economy were unscathed. Personal and firm bankruptcies rose to unprecedented highs. In 1932 and 1933, aggregate corporate profits in the United States were negative. Some 9,000 banks, with \$6.8 billion of deposits, failed between 1930 and 1933 (see figure 4). Since some suspended banks eventually reopened and deposits were recovered, these figures overstate the extent of the banking distress.⁵ Nevertheless, bank failures were numerous and their effects severe, even compared with the 1920s, when failures were high by modern standards.

Much of the debate about the causes of the Great Depression has focused on bank failures.

²Until changed by the Banking Act of 1935, the chief executive officers of the Reserve Banks held the title "governor." Today these officers are titled "president," while members of the Board of Governors, which replaced the Federal Reserve Board in 1935, now hold the title "governor."

³The appendix provides a list of sources for the data used in this article. The GNP and unemployment series used here are standard, but Romer (1986a, 1986b) presents new estimates of GNP and unemployment for the 1920s. Both new estimates exhibit less variability than those traditionally used; Romer's estimate of the unemployment rate in 1929 is 4.6 percent, compared with 3.2 percent plotted here.

⁴Darby (1976) argues that the unemployment rate series considerably overstates the true rate after 1933 because it takes persons employed on government relief projects as unemployed. Kesselman and Savin (1978) offer an opposing view. Regardless of which argument is accepted, unemployment during the 1930s was exceptionally severe, particularly since there were relatively few multi-income households.

⁵There was no deposit insurance in these years. The Banking Act of 1933 created federal deposit insurance. During the 19th and early 20th centuries a number of states experimented with insurance plans for their state-chartered banks, but none was still in existence by 1930. See Calomiris (1989) for a survey of the state systems.

Figure 1
Nominal and Real Gross National Product

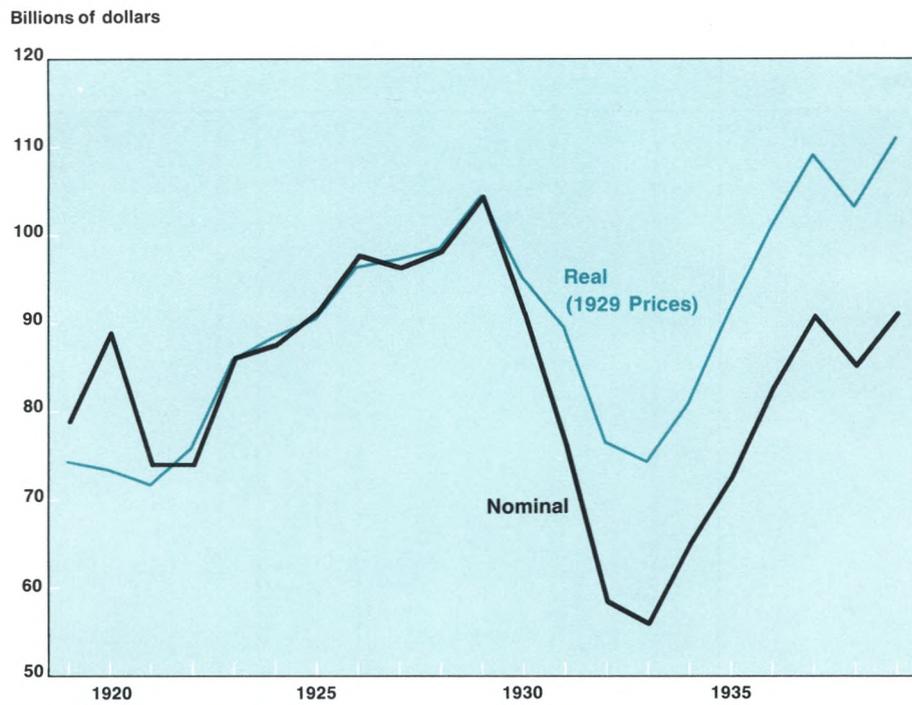


Figure 2
Implicit Price Index

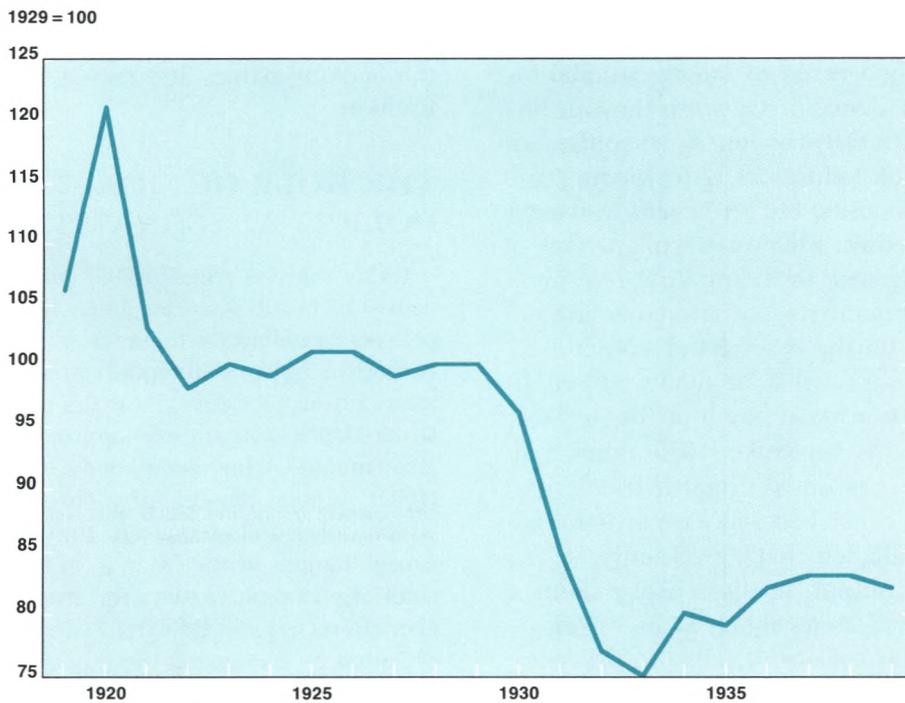
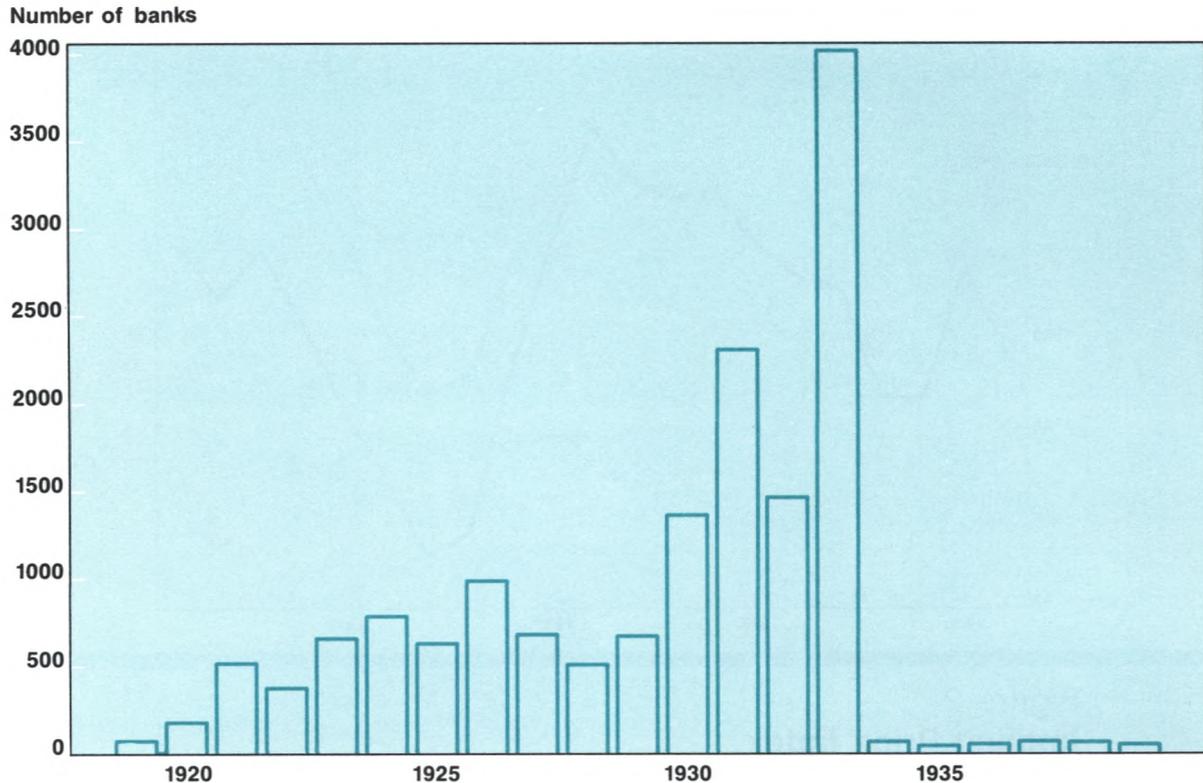


Figure 3
Unemployment Rate



Were they merely a result of falling national income and money demand? Or were they an important cause of the Depression? Most contemporaries viewed bank failures as unfortunate for those who lost deposits, but irrelevant in macroeconomic significance. Keynesian explanations of the Depression agreed, including little role for bank failures. Monetarists like Friedman and Schwartz (1963), on the other hand, contend that banking panics caused the money supply to fall which, in turn, caused much of the decline in economic activity. Bernanke (1983) notes that bank failures also disrupted credit markets, which he argues caused an increase in the cost of credit intermediation that significantly reduced national output. In these explanations, the Federal Reserve bears much of the blame for the Depression because it failed to prevent

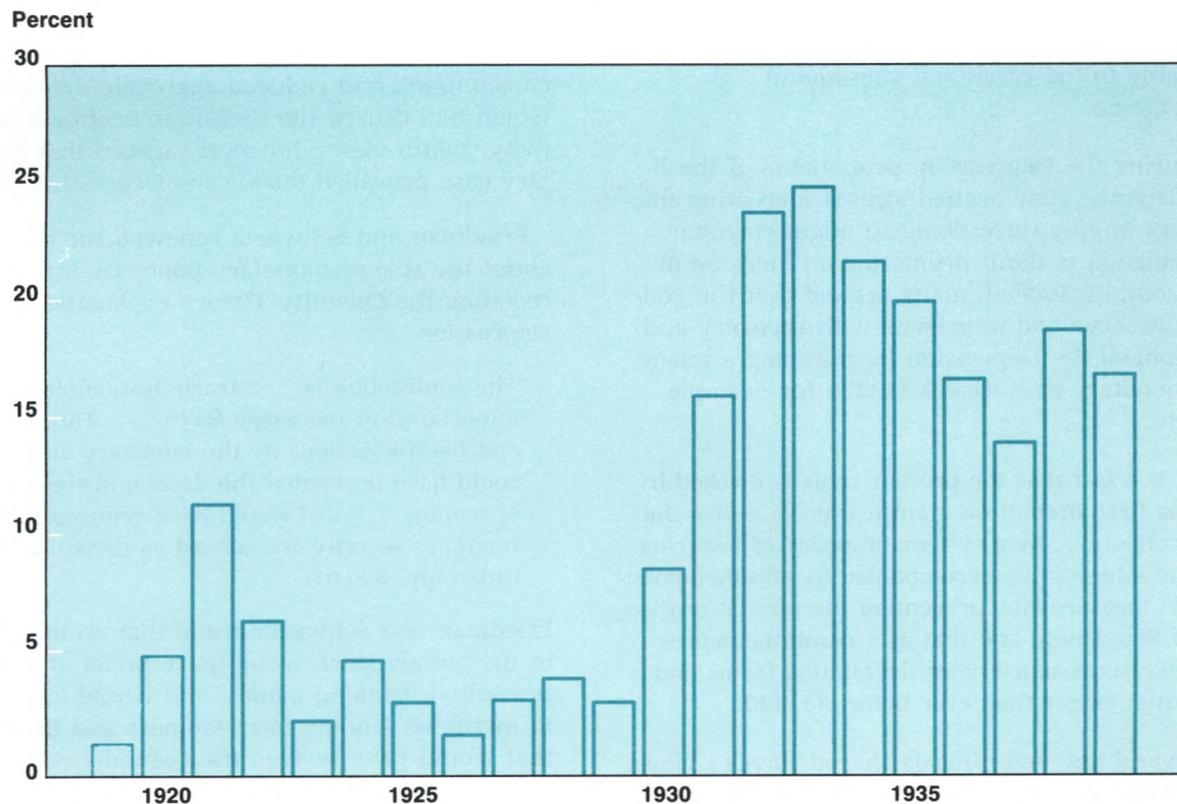
the banking panics and money supply contraction.

THE ROLE OF MONETARY POLICY: ALTERNATIVE VIEWS

Today there is considerable debate about the causes of business cycles and whether government policies can alleviate them.⁶ Just as there is no consensus now, contemporary observers had many different views about the causes of the Great Depression and the appropriate response of government. A few economists, like Irving Fisher (1932), applied the Quantity Theory of Money, which holds that changes in the money supply cause changes in the price level and can affect the level of economic activity for short periods. These economists argued that the Fed should prevent deflation by increasing the money supply. At the

⁶See Belongia and Garfinkel (forthcoming).

Figure 4 Bank Suspensions



other extreme, proponents of “liquidationist” theories of the cycle argued that excessively easy monetary policy in the 1920s had contributed to the Depression, and that “artificial” easing in response to it was a mistake. Liquidationists thought that overproduction and excessive borrowing cause resource misallocation, and that depressions are the inescapable and necessary means of correction:

In the course of a boom many bad business commitments are undertaken. Debts are incurred which it is impossible to repay. Stocks are produced and accumulated which it is impossible to sell at a profit. Loans are made which it is impossible to recover. Both in the sphere of finance and in the sphere of production, when the boom breaks, these bad commitments are revealed. Now in order that

revival may commence again, it is essential that these positions should be liquidated. . . .⁷

One implication of the liquidationist theory is that increasing the money supply during a recession is likely to be counterproductive. During a minor recession in 1927, for example, the Fed had made substantial open market purchases and reduced its discount rate. Adolph Miller, a member of the Federal Reserve Board, who agreed with the liquidationist view, testified in 1931 that:

It [the 1927 action] was the greatest and boldest operation ever undertaken by the Federal Reserve System, and, in my judgment, resulted in one of the most costly errors committed by it or any banking system in the last 75 years. I am inclined to think that a different policy at that time would have left us with a different

⁷Lionel Robbins, *The Great Depression* (1935) [quoted by Chandler (1971), p. 118].

condition at this time. . . . That was a time of business recession. Business could not use and was not asking for increased money at that time.⁸

In Miller's view, because economic activity was low, the reserves created by the Fed's actions fueled stock market speculation, which led inevitably to the crash and subsequent depression.

During the Depression, proponents of the liquidationist view argued against increasing the money supply since doing so might reignite speculation without promoting an increase in real output. Indeed, many argued that the Federal Reserve had interfered with recovery and prolonged the Depression by pursuing a policy of monetary ease. Hayek (1932), for example, wrote:

It is a fact that the present crisis is marked by the first attempt on a large scale to revive the economy. . . by a systematic policy of lowering the interest rate accompanied by all other possible measures for preventing the normal process of liquidation, and that as a result the depression has assumed more devastating forms and lasted longer than ever before (p. 130).

Several key Fed officials shared Hayek's views. For example, the minutes of the June 23, 1930, meeting of the Open Market Committee report the views of George Norris, Governor of the Federal Reserve Bank of Philadelphia:

He indicated that in his view the current business and price recession was to be ascribed largely to overproduction and excess productive capacity in a number of lines of business rather than to financial causes, and it was his belief that easier money and a better bond market would not help the situation but on the contrary might lead to further increases in productive capacity and further overproduction.⁹

While the liquidationist theory of the business cycle was commonly believed in the early 1930s,

it died out quickly with the Keynesian revolution, which dominated macroeconomics for the next 30 years. Keynesian explanations of the Depression differed sharply from those of the liquidationists. Keynesians tended to dismiss monetary forces as a cause of the Depression or a useful remedy. Instead they argued that declines in business investment or household consumption had reduced aggregate demand, which had caused the decline in economic activity.¹⁰ Both views, however, agreed that monetary ease prevailed during the Depression.

Friedman and Schwartz renewed the debate about the role of monetary policy by forcefully restating the Quantity Theory explanation of the Depression:

The contraction is. . . a tragic testimonial to the importance of monetary forces. . . . Different and feasible actions by the monetary authorities could have prevented the decline in the stock of money. . . [This] would have reduced the contraction's severity and almost as certainly its duration (pp. 300-01).

Friedman and Schwartz argue that an increase in the money stock would have offset, if not prevented, banking panics, and would have led to increased lending to consumers and business that would have revived the economy.

Many disagree with the Friedman and Schwartz explanation, although some recent Keynesian explanations concede that restrictive monetary policy did play a role in the Depression.¹¹ Other studies, such as Field (1984), Hamilton (1987), and Temin (1989), conclude that contractionary monetary policy in 1928 and 1929 contributed to the Depression. Bordo (1989) and Wicker (1989) provide detailed surveys of the monetarist-Keynesian debate about the causes of the Great Depression, and interested readers are referred to them. Since most recent contributions to this literature emphasize the effects of monetary policy, a new look at the policies of the Federal Reserve during the Great Depression is warranted.

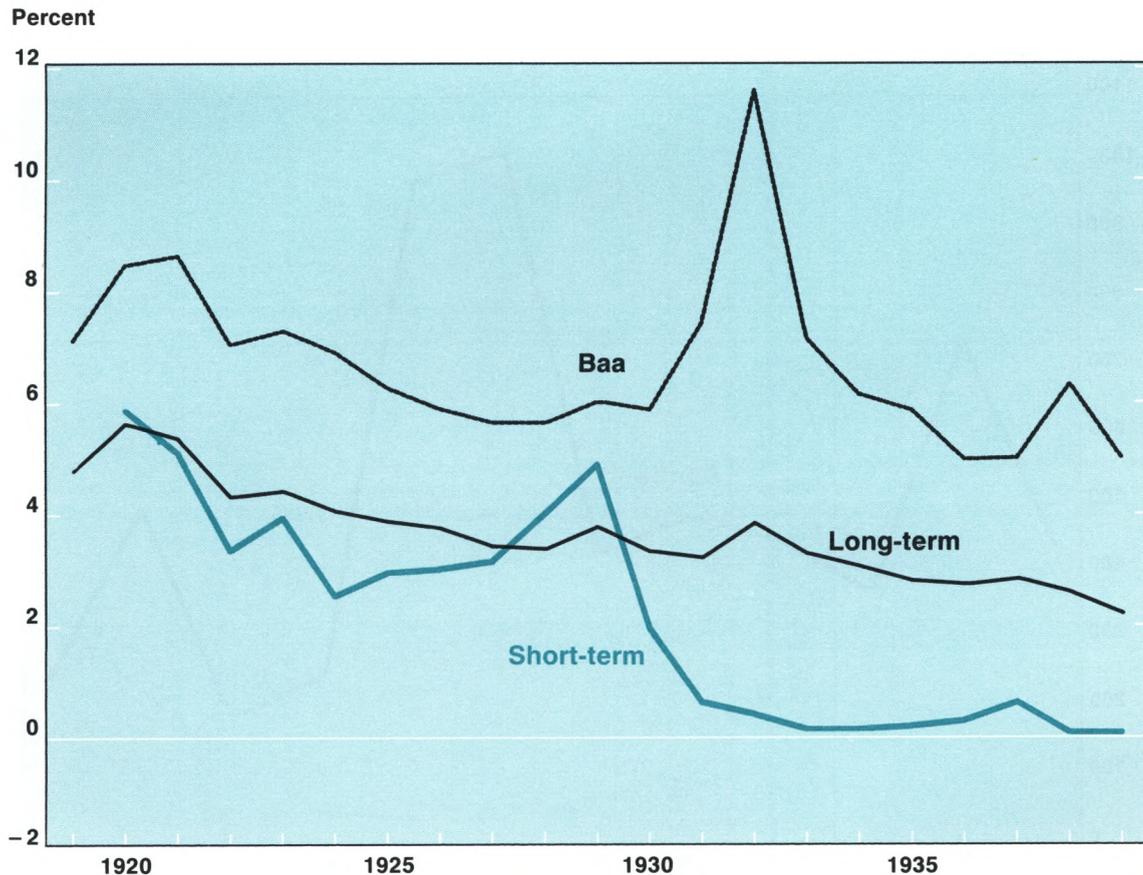
⁸U.S. Senate (1931), p. 134.

⁹Quoted by Chandler (1971), pp. 136-37. De Long (1990) details the liquidationist cycle theory, and Chandler (1971), pp. 116-23, has a general discussion of prevailing business cycle theories and their prescriptions for monetary policy.

¹⁰See Temin (1976) for a survey of Keynesian explanations of the Great Depression.

¹¹Most criticize the Fed's discount rate increases and failure to replace reserve losses suffered by banks in the panic following Great Britain's departure from the gold standard in late 1931. See Temin (1976), p. 170, and Kindleberger (1986), pp. 164-67.

Figure 5
Interest Rates



WERE MONETARY CONDITIONS EASY OR TIGHT?

A fundamental disagreement within the Federal Reserve System and among outside observers, even today, is whether monetary policy during the Depression was easy or tight. Most Fed officials felt that money and credit were plentiful. Short-term market interest rates fell sharply after the stock market crash of 1929 and remained at extremely low levels throughout the 1930s (see figure 5). To most observers, the decline in short-term rates implied monetary ease. Long-term interest rates declined less sharply, however, and yields on risky bonds, such as

Baa-rated bonds, rose during the first three years of the Depression (see figure 5).¹² Nevertheless, the exceptionally low yields on short-term securities has suggested to many observers an abundance of liquidity.

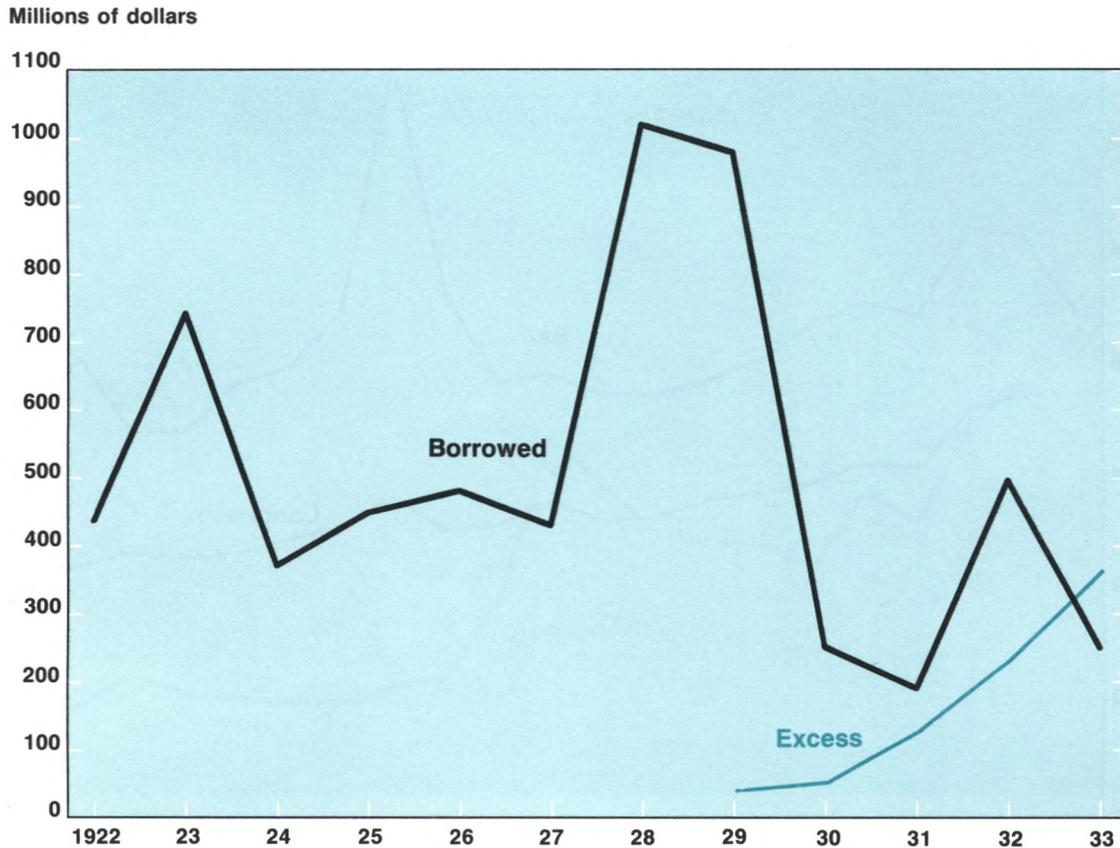
Other variables also have been interpreted as indications of easy monetary conditions. Relatively few banks came to the Fed's discount window to borrow reserves, for example, and many banks built up substantial excess reserves as the Depression progressed (see figure 6).¹³ To most observers, it appeared that there was little demand for credit and, since most policymakers saw their mission as one of accommodating

¹²The short-term rate series through 1933 is the average daily yield in June of each year on three- to six-month Treasury notes and certificates, and the yield on Treasury bills thereafter. The long-term series is the average daily

yield in June of each year on U.S. government bonds.

¹³Data on excess reserves before 1929 are not available, but they were not likely very large.

Figure 6
Borrowed and Excess Reserves of
Federal Reserve Member Banks



ing credit demand, few believed that more vigorous expansionary actions were necessary.¹⁴

Low interest rates and an apparent lack of demand for reserves have led many researchers to conclude that tight money did not cause the Depression. Temin (1976), for example, writes:

There is no evidence of any effective deflationary pressure from the banking system between the stock-market crash in October 1929 and the British abandonment of the gold standard in

September 1931. . . . There was no rise in short-term interest rates in this two-year period. . . . The relevant record for the purpose of identifying a monetary restriction is the record of short-term interest rates (p. 169).

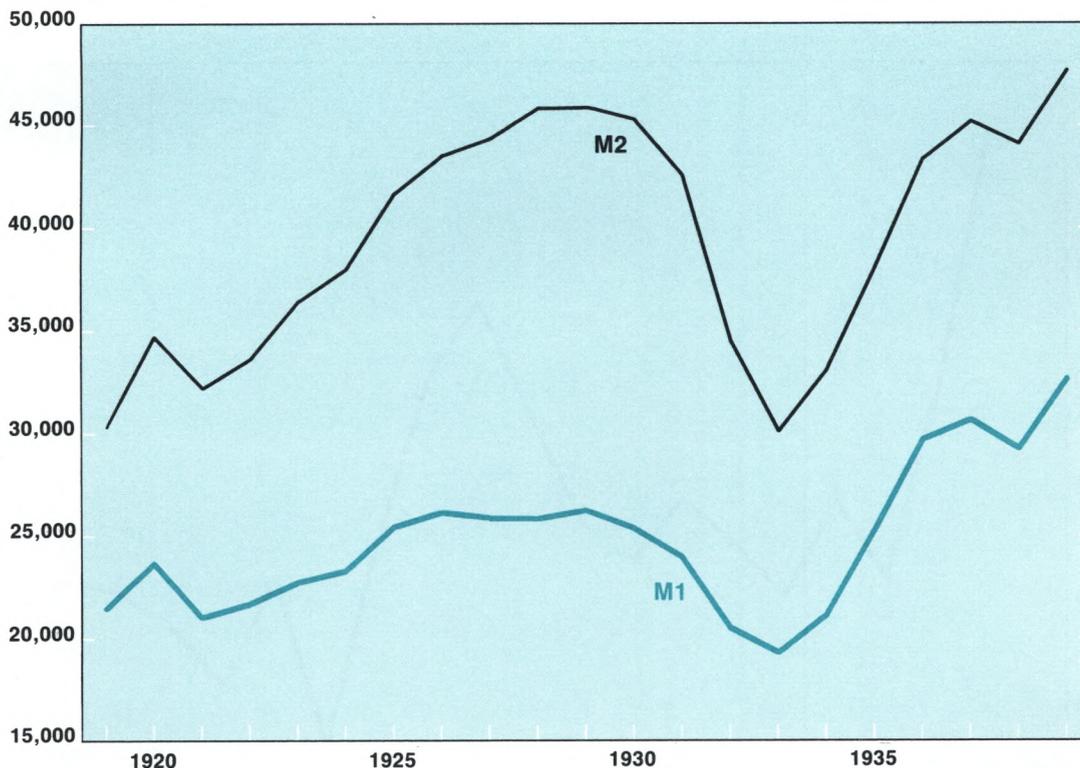
Other indicators of monetary conditions, however, suggest the opposite conclusion. Deflation implied that the value of the dollar rose 25 percent from 1929 to 1933, which Schwartz

¹⁴The Federal Reserve System's founders intended that it operate according to the Real Bills Doctrine. Fed credit would be extended primarily through the discount window as member banks borrowed to finance short-term agricultural or business loans. A decline in economic activity would reduce discount window borrowing, causing Federal Reserve credit to decline. By 1924, System policy had evolved away from a strict Real Bills interpretation, but it

probably continued to have considerable influence on many Fed officials. See West (1977) or Wicker (1966) for discussion of the influence of the Real Bills Doctrine on policy over time.

Figure 7 Money Supply

Millions of dollars



(1981) argues reflected exceptionally tight money. Another indicator, the money stock, fell by one-third from 1929 to 1933 (see figure 7).¹⁵ Friedman and Schwartz contend that:

It seems paradoxical to describe as 'monetary ease' a policy which permitted the stock of money to decline. . . by a percentage exceeded only four times in the preceding fifty-four years and then only during extremely severe business-cycle contractions (p. 375).

And finally, numerous studies point out that the real interest rate, that is, the interest rate ad-

justed for changes in the price level, rose sharply during the Depression (see figure 8).¹⁶ While the nominal yield on short-term government securities fell to an exceptionally low level, deflation implied that their real yield rose above 10 percent in 1930 and 1931. Thus, in contrast to the apparent signal given by nominal interest rates, member bank borrowing and excess reserves, the falling money stock and deflation suggest that monetary conditions were far from easy.¹⁷

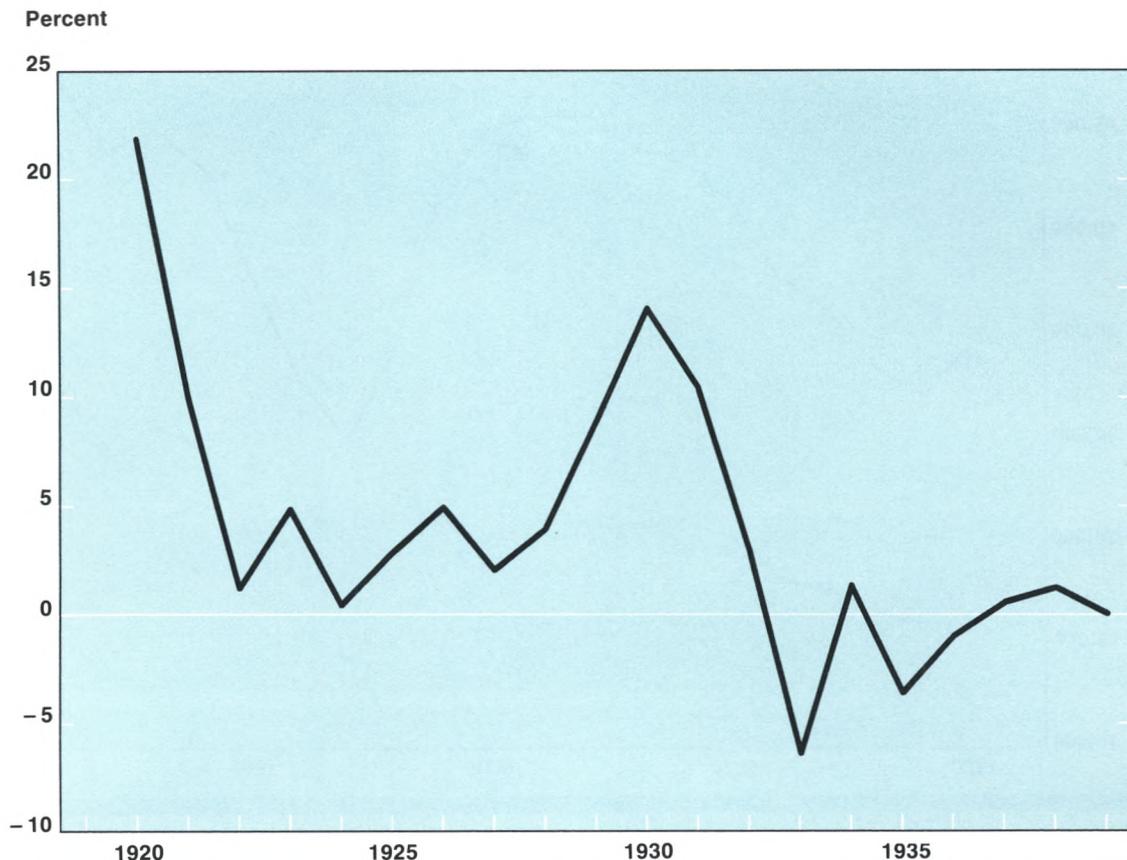
Many economists now conclude that the Federal Reserve should have responded more

¹⁵M1 is the sum of coin and currency held by the public and demand deposits. M2 also includes time deposits at commercial banks.

¹⁶See Meltzer (1976) and Hamilton (1987), for example. The real interest rate plotted in figure 8 is calculated as the prevailing yield on short-term government securities in June of each year, less the rate of inflation in the subsequent year. Since actual, rather than anticipated, inflation is used to calculate the real rate, it is considered an *ex post*, rather than *ex ante*, rate.

¹⁷Yet another indicator is the real money supply, i.e., the growth rate of the nominal supply of money less the expected rate of inflation. Since the price level fell faster than the nominal supply of money (M1 or M2) during the first two years of the Depression, Temin (1976) argues that monetary conditions were not tight. The increase in real money balances was relatively slow, however, which Hamilton (1987) argues was contractionary.

Figure 8
Ex Post Real Interest Rate



vigorously to the Depression. There is little agreement, however, about why the Fed did not. The next sections examine alternative explanations for Federal Reserve behavior during the Depression.

THE IMPACT OF STRONG'S DEATH: ALTERNATIVE VIEWS

Irving Fisher testified before Congress in 1935 that the Depression was severe because "Governor Strong had died and his policies died with him. . . . I have always believed, if he had lived, we would have had a different situation."¹⁸ According to Fisher, Benjamin Strong had discovered how to use monetary policy to maintain

price level stability, "and for seven years he maintained a fairly stable price level in this country, and only a few of us knew what he was doing. His colleagues did not understand it."¹⁹ In Fisher's view, Strong adjusted the quantity of money to maintain a stable price level; had he lived, Fisher says, he would have prevented the deflation of the 1930s by not allowing the quantity of money to decline.

Friedman and Schwartz agree with Fisher that Strong's death caused monetary policy to change significantly. They argue that Strong's aggressive open market purchases and discount rate reductions in 1924 and 1927 had quickly alleviated recessions, but that his death produced a sharply different policy during the Depression:

¹⁸U.S. House of Representatives (1935), p. 534.

¹⁹ibid, pp. 517-20.

If Strong had still been alive and head of the New York Bank in the fall of 1930, he would very likely have recognized the oncoming liquidity crisis for what it was, would have been prepared by experience and conviction to take strenuous and appropriate measures to head it off, and would have had the standing to carry the System with him (pp. 412-13).

Friedman and Schwartz make a persuasive case. Strong was an experienced financial leader. He had served as an officer of Bankers Trust Company, and during the Panic of 1907 as head of a committee reporting to J. P. Morgan that determined which financial institutions could be rescued.²⁰ He was the first governor of the Federal Reserve Bank of New York and emerged as leader of the Federal Reserve System both because of his personality and stature in the financial community and because of the relative importance of New York member banks in the international financial market.²¹ He chaired a committee of Federal Reserve Bank governors that coordinated System open market operations and represented the System in dealings with foreign central banks and Congress.²² It is clear that, with his death, the Fed lost an experienced and forceful leader.

Some researchers argue, however, that Strong's death had little effect on policy. Temin (1989), for example, writes that "The death of Strong was a minor event in the history of the Great Depression" (p. 35). And Brunner and Meltzer (1968) argue that, "While there is some evidence that the death of Benjamin Strong contributed to a shift in the balance of power within the Federal Reserve. . . we find that a special explanation of monetary policy after 1929 is unnecessary. . ." (p. 341). The disagreement between these authors and those such as Fisher, Friedman and Schwartz rests on their views of whether Strong's policies would have prevented the monetary collapse and Depression.

WHAT WAS STRONG'S POLICY?

Much of Strong's testimony before Congressional committees, as well as other speeches and writings, suggests that he had developed a policy of money supply control to limit fluctuations in the price level. For example, in an unpublished article dated April 1923, he wrote: "If, as is now universally admitted, prices are influenced to advance or to decline by increases or decreases in the total of 'money'. . . then the task of the System is to maintain a reasonably stable volume of money and credit. . ." ²³ And, in a speech to the American Farm Bureau in December 1922, he said that monetary policy:

. . . should insure that there is sufficient money and credit available to conduct the business of the nation and to finance not only the seasonal increases in demand but the annual or normal increase in volume. . . . I believe that it should be the policy of the Federal Reserve System, by the employment of the various means at its command, to maintain the volume of credit and currency in this country at such a level so that, to the extent that the volume has any influence upon prices, it cannot possibly become the means for either promoting speculative advances in prices, or of a depression of prices.²⁴

These statements suggest that Strong would not have permitted the money supply collapse or deflation that occurred after 1929.

Other aspects of Strong's testimony, speeches and writings give different or ambiguous impressions of his views, however, making it difficult to infer what policies he would have advocated during the Depression. In testimony before the House Banking Committee in 1926, Strong described the relationship between Fed policy and the quantity of bank deposits, discussing in detail the multiplier relationship between bank reserves and deposits.²⁵ But he also

²⁰Chandler (1958), pp. 27-28.

²¹The Federal Reserve Act gave the individual Reserve Banks authority to initiate discount rate changes and open market operations. The Federal Reserve Board could approve or disapprove these actions, but its role was primarily supervisory, with no clear authority to determine policy. Because of this, and perhaps because it lacked forceful leaders, the Board did not dominate policy making until after the System was restructured by the Banking Act of 1935. See Wheelock (forthcoming) for details of this reorganization.

²²Initially, each Reserve Bank determined its own open market operations. But Treasury Department complaints that

they made it difficult to price new debt issues and a growing understanding of the impact of open market operations on economic activity, led the Banks to form a "Governors Committee" to coordinate open market operations. This committee was replaced in 1923 by the Open Market Investment Committee, which Strong headed until his death.

²³"Prices and Price Control," in Burgess (1930), pp. 229-30.

²⁴Quoted by Chandler (1958), p. 200.

²⁵U.S. House of Representatives (1926), pp. 334-35.

testified that, "when it comes to a decline of price level, the origin of which can not be attributed to a credit policy, this effort that you make by a credit policy to arrest a fall of prices may do more harm than good. . . ." ²⁶ It is also difficult to interpret his writing that "the task of the System is to maintain a reasonably stable volume of money and credit, *with due allowances for seasonal fluctuations in demand, for normal annual growth in the country's development. . . and with such allowance as may be imposed by those great cycles of prosperity and depression. . .*" ²⁷ What sort of allowance for fluctuations does he mean? This statement could be read as advocating an increase or a *decrease* in money in response to a decline in economic activity. The latter is suggested by the following statement: "there should be no such excessive or artificial supplies of money and credit as will simply permit the marking up of prices when there is no increase in business or production to warrant an increase in the volume of money and credit." ²⁸ This sounds like the warnings by some officials during the Depression that monetary expansion would be inflationary or cause speculation *because* economic activity was low.

Strong also seems to have concluded that the deflation from mid-1920 to 1921 had positive effects:

The deflation which took place in the United States following the collapse of prices resulted in extricating the reserve system—the whole monetary system of the country—from a position of permanent entanglement. . . and I think that was one of the fortunate results of the policy. . . . One of the results of this liquidation. . . has been to put this country on as sound or a sounder monetary basis than any other country in the world, without the introduction of a lot of money or credit into circulation, based solely upon the Government debt to the bank of issue. I mean to explain that there have been offsetting advantages to that deflation. . . . ²⁹

This quotation suggests that Strong might have found similar offsetting advantages to the deflation that followed the stock market crash in 1929 and might have been reluctant to expand the money supply through purchases of government securities.

These quotations illustrate the ambiguity of many of Strong's statements and the difficulty of inferring what policies he would have pursued in the 1930s. To determine whether monetary policy was changed by Strong's death, it is probably more instructive to examine the policies he actually implemented.

Two aspects of Strong's policies have received attention from scholars studying Federal Reserve behavior. First, beginning in the early 1920s, the System offset or "sterilized" gold flows and other changes in reserve funds by altering the volume of Fed credit outstanding.³⁰ This policy limited fluctuations in bank reserves and, thus, in the money supply and price level. According to Friedman and Schwartz (1963), pp. 394-99, however, the Fed permitted gold outflows during the Depression to reduce bank reserves and the money supply and more than offset gold inflows. What had been an essentially neutral policy, therefore, became a contractionary policy after Strong's death.

Miron (1986) argues that a similar change occurred in the Fed's accommodation of seasonal credit and currency demands. From the System's inception, Federal Reserve credit was supplied to prevent seasonal demands from draining bank reserves and increasing interest rates. According to Miron, the Fed was less accommodative after 1928, which contributed to the frequency of financial crises during the Depression.³¹

Beyond the offsetting of gold and currency flows, a second aspect of Strong's policies has received considerable attention. In 1924 and 1927, the Fed made large open market purchases and discount rate reductions that were followed by increases in bank reserves and the

²⁶Ibid, p. 577.

²⁷"Prices and Price Control," April 1923, in Burgess (1930), p. 230 (italics added).

²⁸From a speech to the American Farm Bureau in 1922 [quoted by Chandler (1958), p. 200].

²⁹U.S. House of Representatives (1926), p. 309.

³⁰Federal Reserve credit is supplied by Fed purchases of securities and discount window lending (member bank borrowing). It consists also of some miscellaneous compo-

nents, such as float. In this era, the Federal Reserve purchased both U.S. government securities and bankers acceptances (at fixed acceptance buying rates), and discount window lending consisted of both rediscount of eligible paper and advances to member banks at the discount rate.

³¹Miron does not test this claim except to show that Federal Reserve credit was somewhat less seasonal after 1928 than before.

money supply. Friedman and Schwartz (1963) argue that the Fed's purpose was to combat recessions and that its failure to respond as aggressively during the Depression reflected a distinct change in System behavior. Other researchers, however, such as Wicker (1966) and Brunner and Meltzer (1968), find no inconsistency in Fed behavior, arguing that the comparatively weak response to the Depression was in fact predictable from the policy strategy developed by Strong.

The Sterilization Policy

Before entering World War I, the United States absorbed large gold inflows that added directly to bank reserves and caused a significant money supply increase.³² Although inflows ceased after America entered the war, bank reserves and the money supply continued to increase rapidly as Federal Reserve credit was extended to help finance the war. After the war, gold outflows reduced the reserves of the Reserve Banks, leading them to raise their discount rates and thereby restrict credit to member banks.³³ The resulting decline in Fed credit coincided with a sharp decline in the money supply and deflation.³⁴

Following the violent inflation-deflation cycle of 1917-21, the Fed began to intervene to prevent gold flows from affecting bank reserves.³⁵ In testimony before the House Committee on Banking and Currency, Strong gave a clear explanation of this policy, presenting charts showing the relationship between gold flows, Fed credit, bank reserves and the price level.³⁶ He explained:

In the old days there was a direct relation between the country's stock of gold, bank deposits and the price level because bank deposits

were. . . based upon the stock of gold and bore a constant relationship to the gold stock, and the volume of bank deposits and the general price level were similarly related. But in recent years the relationship between gold and bank deposits is no longer as close or direct as it was, because the Federal Reserve System has given elasticity to the country's bank reserves. Reserve Bank credit has become the equivalent of gold in its power to serve as the basis of bank credit. . . . Hence. . . the present basis for bank credit consists of gold plus Federal Reserve credit. Federal Reserve bank credit is an elastic buffer between the country's gold supply and bank credit.³⁷

Strong credited the Federal Reserve System for preventing inflation in 1921 and 1922:

As the flow of gold imports was pouring into the United States in 1921 and 1922, many economists abroad, and in this country as well, expected that this inward flow of gold would result in a huge credit expansion and a serious price inflation. That no such expansion or inflation has taken place is due to the fact that the amount of Federal Reserve credit in use was diminished as the gold imports continued. Thus, in the broad picture of financial events in this country since 1920, the presence of the Reserve System may be said to have prevented rather than fostered inflation.³⁸

Figure 9 illustrates the policy of offsetting gold and currency flows during the 1920s.³⁹ The shaded insert on pages 18-19 describes the mechanics of this policy. Since gold is a source of banking system reserves, gold inflows, unless offset, add to the stock of reserves. A gold inflow thus has the same effect on reserves as a

³²The accompanying shaded insert discusses the sources and uses of reserve funds and explains the mechanics of the Fed's sterilization policy.

³³The Reserve Banks were required to maintain gold reserves of 40 percent against their note issues and 35 percent against deposits. A discount rate increase was intended to reduce discount loans and, thus, the Fed's note and deposit liabilities, as well as encourage gold inflows as investors sought higher yields in the United States.

³⁴In January 1916, the All Commodities Price Index stood at 112.8 (1913 = 100). In April 1917 (when the United States entered the war), it was at 172.9. At its peak in May 1920, the Index was at 246.7. It then fell to a low of 138.3 in January 1922.

³⁵Before the war, the Fed lacked the resources to offset gold inflows, so sterilization was impossible. By the end of 1921, the Reserve Banks had sufficient reserves to reduce

their discount rates, and individually they began to purchase government securities. By 1923, there seems to have been a conscious effort to offset gold flows [Friedman and Schwartz (1963), pp. 279-87].

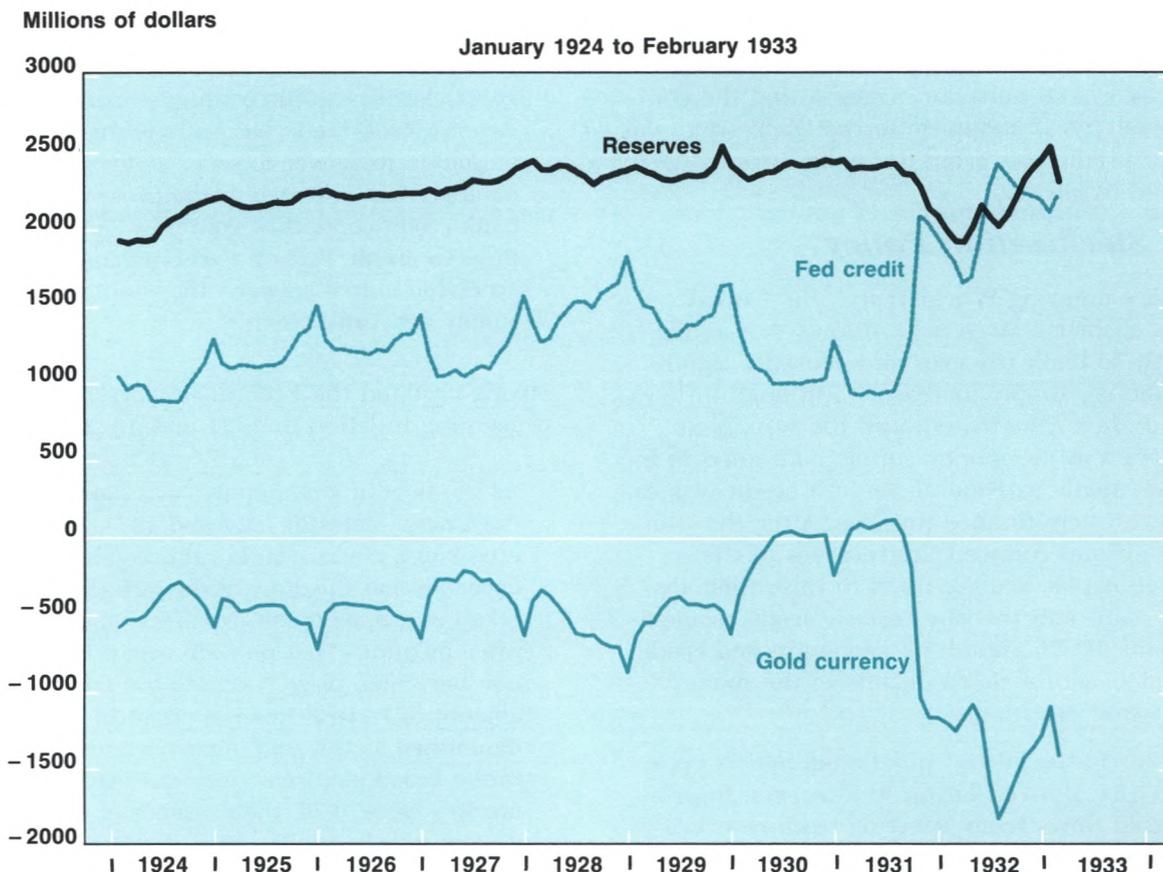
³⁶These charts are reproduced by Hetzel (1985), p. 7, who examines Strong's unwillingness to support legislation that would require the Fed to adopt a price level stabilization rule.

³⁷U.S. House of Representatives (1926), p. 470.

³⁸Ibid, p. 471.

³⁹In practice, the Fed also offset changes in other sources and uses of reserve funds, but gold and currency flows were the most substantial; the others can be ignored for illustrative purposes.

Figure 9 Gold and Currency Sterilization



Federal Reserve purchase of securities. Currency held by the public is a use of reserves: increases in public currency holdings reflect reserve withdrawals from banks. Thus, if not offset, an increase in currency would correspond to a decrease in bank reserves. The difference between gold and currency is plotted in figure 9. It is clear that net increases (decreases) in this difference were largely offset by declines (increases) in Fed credit outstanding, so that total bank reserves changed relatively little.

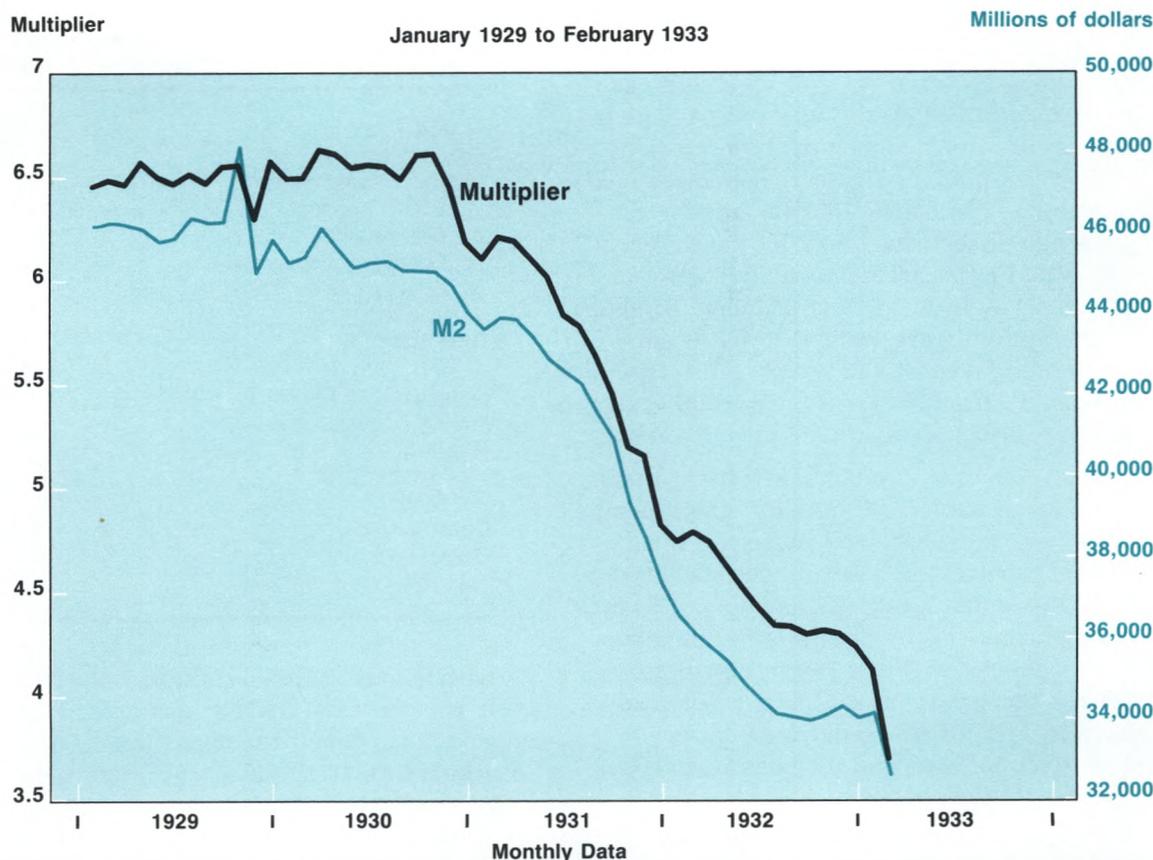
It is also clear that Benjamin Strong's death did not interrupt the offsetting of gold and cur-

rency flows, at least until the fourth quarter of 1931. The money supply contraction and deflation during the first two years of the Depression were not caused by a decline in bank reserves. Instead, as figure 10 illustrates, the money supply fell because the money multiplier declined.⁴⁰ This was particularly true beginning in the fourth quarter of 1930, when banking panics caused marked increases in the currency-deposit and reserve-deposit ratios.⁴¹ The relative stability of bank reserves ended abruptly in September 1931. On September 21, Great Britain left the gold standard. Speculation

⁴⁰The multiplier plotted in figure 10 equals $(1+k)/(r+k)$, where k is the ratio of currency held by the public to demand deposits and r is the ratio of bank reserves to deposits. The multiplier is defined as the money supply (here M2) divided by the monetary base, or "high-powered money," which is the sum of bank reserves and currency held by banks and the public.

⁴¹Friedman and Schwartz (1963), pp. 340-42, conclude that the money supply decline between August 1929 and October 1930 was caused by a decline in the monetary base. This decline was due to a decrease in currency, not bank reserves. Thereafter, the base rose, but less than necessary to offset the sharp decline in the multiplier.

Figure 10
Money Supply and Base Multiplier



that the United States would soon follow led to a large withdrawal of foreign deposits from American banks and a consequent gold outflow.⁴² In the six weeks ending October 28, 1931, the gold stock declined \$727 million (15 percent).⁴³ The Fed raised its discount and acceptance buying rates, hoping that an increase in domestic interest rates would halt the gold outflow by raising the relative yield of U.S. financial assets. This action was hailed as demonstrating the Fed's resolve to maintain gold convertibility of the dollar, and the gold outflow ceased.

Banks continued to lose reserves, however, as depositors panicked and converted deposits into currency. Member banks were able to partially offset the reserve outflows by borrowing and by selling acceptances to the Reserve Banks, albeit at the recently increased discount and acceptance buying rates. But the Fed made only trivial purchases of government securities, and, in all, Federal Reserve member banks suffered a \$540 million (22 percent) loss of reserves between September 16, 1931, and February 24, 1932.⁴⁴

⁴²If the United States had left the gold standard, it is likely that the dollar would have depreciated against gold and other currencies that remained linked to gold. This would have meant an immediate loss of wealth in terms of gold for anyone holding dollar-denominated assets.

⁴³Board of Governors of the Federal Reserve System (1943), p. 386.

⁴⁴Non-borrowed reserves declined \$1112 million (52 percent), while discount loans (borrowed reserves) increased \$572 million.

The Federal Reserve Balance Sheet and Reserve Sterilization

A simplified version of the Federal Reserve System's balance sheet on December 31, 1929, is shown below. The principal assets of the Federal Reserve were its gold and cash reserves and Fed credit outstanding. The latter consisted of member bank borrowing (bills discounted),¹ bankers acceptances held by the Reserve Banks (bills bought),² U.S. government securities held by the Reserve Banks and a miscellaneous component, made up primarily by float. The principal liabilities of the System were Federal Reserve notes outstanding, deposits of member banks, and deposits of the U.S. Treasury and others, such as foreign central banks.

Most System transactions involve member commercial banks and directly affect member bank reserves. If the Fed makes an open market purchase of government securities from a member bank, for example, it pays for the securities by crediting the member bank's deposit with the Federal Reserve. Since a deposit at the Fed is the principal form in which banks hold their legal reserves,³ an open market purchase adds directly to bank reserves.⁴

Many Federal Reserve transactions are initiated by commercial banks. When the United States was on the gold standard, the Fed held substantial gold reserves, and transactions in gold were common. For example, suppose gold coin was deposited by a customer of a member bank. The bank could send the coin to its Federal Reserve Bank and receive an increase in its reserve deposit of that amount. The Fed's gold reserves and member bank deposits would increase by the same amount. Suppose instead that a member bank was experiencing large cash withdrawals and needed extra currency. It could request currency, in the form of Federal Reserve notes, from its Reserve Bank and pay for the currency with a reduction in its reserve deposit. Hence, as Federal Reserve notes outstanding increased, bank reserves would decline by the same amount.

The Fed could offset, or "sterilize," the impact of one transaction on bank reserves

Federal Reserve System Balance Sheet December 31, 1929 (billions of dollars)

Assets		
Gold and cash reserves		\$3.01
Federal Reserve credit		1.58
Bills discounted	\$0.63	
Bills bought	0.39	
Government securities	0.51	
Other	0.05	
Other assets		0.87
Total assets		\$5.46
Liabilities and Capital		
Federal Reserve notes		\$1.91
Deposits		2.41
Member bank	\$2.36	
Other	0.05	
Other liabilities		0.69
Capital accounts		0.45
Total liabilities and capital		\$5.46

with a second transaction having the opposite impact on reserves. For example, if the Fed sold government securities in the amount of a gold inflow, there would be no net change in aggregate member bank reserves. The open market sale would reduce reserves just as the gold inflow added to them, leaving no net reserve change. Similarly, a bank could borrow reserves from its Reserve Bank to pay for Federal Reserve notes needed to satisfy withdrawal demands, and thus avoid drawing down its reserve deposit. In this case, Federal Reserve credit (bills discounted) would increase by the amount of the increase in Federal Reserve notes outstanding, and bank reserves would not change. Note that, in this case, the Fed did not initiate the offsetting transaction. Indeed, much of the sterilization of gold and currency flows during the 1920s and early 1930s was at the initiative of member banks, although it was definitely the Fed's intent that sterilization occur.

Federal Reserve sterilization of gold and currency flows from January 1924 to February 1933 is illustrated in figure 9. Note that increases (decreases) in Federal Reserve

credit accompanied declines (increases) in the net of gold and currency outstanding, and thus bank reserves changed comparatively little. In 1930, for example, member bank reserves rose from \$2395 million in December 1929 to \$2415 million in December 1930, an increase of just \$20 million. Over the same

months, there was an increase of \$259 million in the monetary gold stock and a \$120 million decline in currency in circulation. The gold inflow and decline in currency would have added \$379 million to bank reserves, but Fed credit declined by \$370 million to offset their impact almost entirely.⁵

¹Loans to member banks consisted of discounts and advances. Many commercial loans, which often were called "bills," were made on a discount basis; hence, when they were endorsed by a bank and sent to a Reserve Bank in exchange for reserve balances, they were "re-discounted" by the Reserve Bank at the prevailing discount rate. Alternatively, bills were used as collateral for direct advances to member banks, hence the term "bills discounted."

²The terminology is confusing because "bills" in this case refer to bankers acceptances, not to the promissory notes that member banks used as collateral for discount loans.

³From 1917 to 1960, such deposits were the only form in which member banks were permitted to hold their le-

gal reserves. At other times, vault cash has also counted.

⁴Even if the Fed were to purchase securities from someone other than a member bank, bank reserves would still increase once the check issued by the Fed to pay for the securities was deposited in a member bank. Open market security sales reduce bank reserves since, ultimately, a member bank reserve deposit is reduced to pay for the securities sold by the Fed.

⁵The gold inflow, decline in currency and decline in Federal Reserve credit do not sum exactly to the change in bank reserves because of the effect of other, small transactions affecting reserves.

The Fed's failure to fully offset the gold and currency outflows suffered by banks permitted the money supply contraction to accelerate. Fed officials claimed that the Reserve Banks' lack of reserves precluded government security purchases to offset the reserve losses suffered by banks.⁴⁵ The Reserve Banks were required to maintain gold reserves equal to 40 percent of their note issues and reserves of either gold or "eligible paper" against the remaining 60 percent.⁴⁶ Since gold outflows had reduced the System's reserve holdings, and since the System lacked other eligible paper, Fed officials asserted they could not increase Fed credit by purchasing government securities, which were not eligible collateral.

Friedman and Schwartz (1963), pp. 399-406, dispute the Fed's justification for not buying government securities. They argue that the System had sufficient gold reserves and, in any event, that the Federal Reserve Board had the power to suspend the reserve requirements

temporarily. Epstein and Ferguson (1984), pp. 964-65, contend, however, that Fed officials did feel constrained by a lack of gold. Wicker (1966), pp. 169-70, suggests that Fed officials feared that open market purchases would weaken confidence in the Fed's determination to maintain gold convertibility and thereby renew the gold outflow.

In any case, the Glass-Steagall Act of 1932 removed the constraint by permitting government securities to serve as collateral for Federal Reserve note issues. In March 1932, the System began what was then the largest open-market purchase program in its history.⁴⁷ Between February 24 and July 27, 1932, the Fed bought \$1.1 billion of government securities. Member bank reserves increased only \$194 million in these months, however, because of renewed gold and currency outflows and a reduction in member bank borrowing. Moreover, the supply of money continued to fall because of a sharp decline in the money multiplier (see figure 10).⁴⁸

⁴⁵See the Board of Governors of the Federal Reserve System. *Annual Report* (1932), pp. 16-19.

⁴⁶Eligible paper consisted of either bankers acceptances or commercial notes acquired by direct purchase or pledged by member banks as collateral for discount loans. See Board of Governors of the Federal Reserve System (1943), pp. 324-29, and Friedman and Schwartz (1963), p. 400.

⁴⁷Why the Fed undertook these purchases is unclear, especially if fear of undermining the gold standard explains

why purchases were not made immediately following Britain's departure from gold. Friedman and Schwartz (1963), pp. 384-89, argue that the Fed succumbed to pressure from Congress, while Epstein and Ferguson (1984) conclude that pressure from both Congress and commercial banks was important.

⁴⁸During these months, both the reserve-deposit and currency-deposit ratios rose.

The Fed ended its purchase program in July 1932, largely because officials believed it had done little good.⁴⁹ Bank reserves continued to increase, however, as gold inflows were not offset by a corresponding reduction in Fed credit outstanding. Although the money supply ceased to fall, it also failed to rise significantly. In early 1933, large gold and currency outflows caused a renewed money supply decline.⁵⁰ On this occasion, the crisis was stopped by Franklin D. Roosevelt's decision to declare a Bank Holiday and suspend gold shipments. In essence, the Fed's failure to insulate the banking system from gold outflows and panic currency withdrawals had caused the president to act to prevent further reserve losses.

While failure to sterilize gold and currency outflows in 1931 and 1933 was inconsistent with previous actions, it did not represent a fundamental change in regime. Fed officials apparently believed strongly in the gold standard, and there seems to have been no discussion of following Great Britain off gold. Benjamin Strong had been a committed advocate of the gold standard, and it seems doubtful that he would have proposed actions that might have weakened it.⁵¹ As an institution, the Federal Reserve System was willing to forego short-run stability to preserve the gold standard, which it saw as its fundamental mission.⁵²

Reserve sterilization constituted one aspect of System policy begun under Strong, and the Fed deviated little from the policy after his death, at least until the fourth quarter of 1931. In fact, from the stock market crash in October 1929 to Britain's departure from gold on September 21, 1931, the Fed did little but offset gold and currency flows. It certainly did not make large open market purchases, despite the deepening depression. On the surface, this lack of vigor appears at odds with the relatively large open market purchases the Fed made during the minor recessions of 1924 and 1927.

Strong's Countercyclical Policy

The Fed's actions in 1924 mark its first use of open market operations to achieve general policy objectives. In that year, the Fed purchased \$450 million of government securities and cut its discount rate (in three stages) from 4.5 percent to 3 percent. In testimony before the House Banking Committee in 1926, Benjamin Strong listed several reasons for these actions, including the following:

- 1) To accelerate the process of debt repayment to the Federal Reserve Banks by the member banks, so as to relieve this weakening pressure for loan liquidation.
- 2) To give the Federal Reserve Banks an asset which would not be automatically liquidated as the result of gold imports so that later, if inflation developed from excessive gold imports, it might at least be checked in part by selling these securities, thus forcing member banks again into debt to the Reserve Banks and making the Reserve Bank discount rate effective.
- 3) To facilitate a change in the interest relation between the New York and London markets. . . by establishing a somewhat lower level of interest rates in this country at a time when prices were falling generally and when the danger of a disorganizing price advance in commodities was at a minimum and remote.
- 4) By directing foreign borrowings to this market to create the credits which would be necessary to facilitate the export of commodities. . . .
- 5) To render what assistance was possible by our market policy toward the recovery of sterling and the resumption of gold payment by Great Britain.
- 6) To check the pressure on the banking situation in the west and northwest and the resulting failures and disasters.⁵³

⁴⁹Banks' excess reserves increased substantially during the months of the open market purchases, which many saw as idle balances that were unneeded and potentially inflationary. See Friedman and Schwartz (1963), pp. 385-89. As discussed below, Epstein and Ferguson (1984) suggest that pressure from commercial banks contributed to the Fed's decision to end the program.

⁵⁰The money supply fell both because of a decline in reserves and a decline in the money multiplier induced by panic deposit withdrawals.

⁵¹Strong testified before the House Banking Committee in 1928 that, "When you are speaking of efforts simply to

stabilize commerce, industry, agriculture, employment and so on, without regard to the penalties of violation of the gold standard, you are talking about human judgment and the management of prices which I do not believe in at all." [Quoted by Burgess (1930), pp. 331.] See also Temin (1989), p. 35.

⁵²See Temin (1989), pp. 28-29 and 78-87, and Wheelock (1991).

⁵³U.S. House of Representatives (1926), p. 336.

The Fed undertook a second large purchase program in 1927, purchasing \$300 million of government securities and reducing the discount rate again. Strong left no written justification for these operations. Friedman and Schwartz (1963) argue that they were made in response to a recession, and that the 1924 purchases had also been intended to bring about a domestic recovery. Wicker (1966), pp. 77-94 and 106-16, challenges this interpretation, arguing that the actions were motivated by international considerations. According to Wicker, the purchases in 1924 were intended to encourage the flow of gold to Britain by reducing U.S. interest rates relative to those in London, with the goal of assisting Britain's return to the gold standard. The 1927 purchases were intended to help Britain through a payments crisis, again by directing capital toward London; these purchases followed closely a meeting between Strong and European central bank heads.

Chandler (1958), p. 199, argues that both domestic and international goals were important in 1924 and 1927, and Wheelock (1991), ch. 2, finds empirical support for this view. Wheelock also shows that, relative to the decline in economic activity, the Fed made substantially fewer open market purchases in 1930 and 1931 than it did during 1924 and 1927. This might reflect a significant change in System behavior between the 1920s and early 1930s. But an analysis of the Fed's policy methods suggests that its anemic response in 1930-31 might also be explained as the consistent use of a single strategy.

During the early 1920s, the Fed developed a strategy of using open market operations and discount rate changes to affect the level of member bank discount window borrowing. Fed officials observed that, when the System purchased government securities, member bank borrowing tended to decline by nearly the same amount and, similarly, that open market sales led to comparable increases in member bank borrowing. But, while the Fed's operations had little impact on the total volume of Fed credit outstanding, they appeared to have a significant

impact on money markets. According to Chandler (1958):

Federal Reserve officials soon discovered. . . much to their amazement at first, that open market purchases and sales brought about marked changes in money market conditions even though total earning assets of the Reserve Banks remained unchanged. When the Federal Reserve sold securities and extracted money from bank reserves, more banks were forced to borrow from the Reserve Banks, and those already borrowing were forced more deeply into debt. Since banks had to pay interest on their borrowings and did not like to remain continuously in debt, they tended to lend less liberally, which raised interest rates in the market pp. 238-39).

Strong testified that "the effect of open market operations is to increase or decrease the extent to which the member banks must of their own initiative call on the Reserve Bank for credit. . . ." ⁵⁴ Security purchases led to less member bank borrowing and lower interest rates, while sales increased borrowing and rates. ⁵⁵ Strong believed that monetary policy could stimulate economic activity by easing money market conditions:

. . . [W]hen we have very cheap money, corporations and individuals borrow money in order to extend their businesses. That results in plant construction; plant construction employs more labor, brings in to use more materials. . . . It may cause some elevation of wages. It creates more spending power; and with that start it will permeate through into the trades and the general price level. ⁵⁶

Chandler (1958) and Friedman and Schwartz (1963) conclude that under Strong's leadership the Federal Reserve System attempted to stimulate economic activity during recessions by promoting monetary ease (cheap money). This explains why Strong listed "to accelerate the process of debt repayment. . . by the member banks" as a reason for the open market pur-

⁵⁴Ibid, p. 468.

⁵⁵Presumably, discount rate changes alone could achieve the same impact on interest rates, but the Fed preferred to precede discount rate changes with open market operations. Strong testified that "the foundation for rate changes can be more safely and better laid by these preliminary operations in the open market than would be

possible otherwise, and the effect is less dramatic and less alarming. . . than if we just make advances and reductions in our discount rate." [U.S. House of Representatives (1926), p. 333].

⁵⁶U.S. House of Representatives (1926), pp. 578-79.

Table 1

Fed Policy During Three Recessions (dollar amounts in millions)

Date	AIP	GS	DR	DL	DL(NYC)
1929 Jul	124	\$147	5.0%	\$1096	\$319
Oct	118	154	6.0	885	74
1930 Jan	106	485	4.5	501	39
Apr	104	530	3.5	231	17
Jul	93	583	2.5	226	0
Oct	88	602	2.5	196	6
1931 Jan	83	647	2.0	253	5
Apr	88	600	2.0	155	0
Jul	82	674	1.5	169	0
Oct	73	733	3.5	614	74
1923 Apr	106	229	4.5	658	123
Jul	104	97	4.5	834	143
Oct	99	91	4.5	873	121
1924 Jan	100	118	4.5	574	85
Apr	95	274	4.5	489	45
Jul	84	467	3.5	315	13
Oct	95	585	3.0	240	28
1925 Jan	105	464	3.0	275	32
1926 Oct	111	306	4.0	663	84
1927 Jan	107	310	4.0	481	76
Apr	108	341	4.0	447	78
Jul	106	381	4.0	454	59
Oct	102	506	3.5	424	75
1928 Jan	107	512	3.5	465	94

Variable definitions: AIP: Index of Industrial Production (seasonally adjusted); GS: Federal Reserve government security holdings; DR: discount rate of the Federal Reserve Bank of New York; DL: discount loans (member bank borrowing) of all Federal Reserve member banks; DL(NYC): discount loans of reporting banks in New York City.

chases in 1924. Strong used the level of member bank borrowing to determine the specific quantity of security purchases necessary to bring about monetary ease:

Should we go into a business recession while the member banks were continuing to borrow directly 500 or 600 million dollars. . . we should consider taking steps to relieve some of the pressure which this borrowing induces by purchasing Government securities and thus enabling member banks to reduce their indebtedness. . . . As a guide to the timing and

extent of any purchases which might appear desirable, one of our best guides would be the amount of borrowing by member banks in principal centers. . . . Our experience has shown that when New York City banks are borrowing in the neighborhood of 100 million dollars or more, there is then some real pressure for reducing loans, and money rates tend to be markedly higher than the discount rate. On the other hand, when borrowings of these banks are negligible, as in 1924, the money situation tends to be less elastic and if gold imports take place, there is liable to be some credit inflation, with money rates dropping below our discount rate. When member banks are owing us about 50 million dollars or less the situations appears to be comfortable, with no marked pressure for liquidation. . . .⁵⁷

Table 1 compares Federal Reserve actions during the 1924, 1927 and 1930-31 downturns. The Fed's index of industrial production indicates the severity of each recession. Following the stock market crash in October 1929, the New York Fed purchased \$160 million of government securities and, by the end of December, the System had purchased an additional \$150 million. But, from January 1930 to October 1931, the Fed made only modest purchases, particularly in comparison with those made in 1924 and 1927, when the declines in economic activity were less.

The relatively small purchases in 1930 and 1931 appear consistent, however, with the use of member bank borrowing as a policy guide. This, according to Brunner and Meltzer (1968), explains the Fed's failure to respond aggressively to the Depression.⁵⁸ Member bank borrowing fell substantially following the stock market crash in October 1929 and averaged just \$241 million from January 1930 to August 1931. Borrowing by reporting member banks in New York City averaged just \$8 million over the same months. Thus, by Strong's guidelines, money was exceptionally easy and substantial open market operations were unwarranted.

The Fed's use of member bank borrowing as a guide to monetary conditions could explain

⁵⁷Presentation to the Governors' Conference, March 1926 [quoted by Chandler (1958), pp. 239-40].

⁵⁸Wicker (1969) agrees that, to the extent that the Fed responded to domestic conditions, it used member bank borrowing as a guide. See also Meltzer (1976).

why it permitted the money supply to decline sharply during the Depression. During a recession, loan demand declines and banks have fewer profitable investment opportunities. Consequently, the demand for borrowed reserves declines. If this decline in demand is not offset, total reserves and the money supply fall. In a minor recession, as in 1924 and 1927, member bank borrowing falls little. The Fed's guidelines would have suggested that monetary conditions were relatively tight and, in response, it would have made large open market purchases. In a severe economic downturn, as in 1930-31, however, member bank borrowing may fall substantially. But, by Strong's rule the Fed would have made few open market purchases. Thus, ironically, this strategy could result in a greater contraction in the supply of money, the more severe a decline in economic activity.⁵⁹

If, as Brunner and Meltzer (1968) argue, System officials followed Strong's prescription to use the level of bank borrowing to guide policy during the Depression, then it seems that the Fed made no fundamental change in policy after Strong's death.

Although Friedman and Schwartz (1963), pp. 362-419, believe that Strong would have responded aggressively to the Depression, they agree that a majority of Fed officials interpreted the low level of member bank borrowing in 1930 and 1931 as signaling monetary ease. They contend, however, that officials of the New York Fed understood the flaws in using member bank borrowing as a policy guide and would have pursued appropriately expansionary policies if they had the authority.⁶⁰

In March 1930 the Open Market Investment Committee, which consisted of five Reserve Bank governors, was replaced by the Open Market Policy Conference, in which representatives of all 12 Banks participated. The Investment Committee had been led by Benjamin Strong, and then by George Harrison, Strong's successor as governor of the Federal Reserve Bank of New York. Friedman and Schwartz, p. 414, contend

that the Policy Conference was established to wrest power from the New York Bank. And they show, pp. 367-80, that New York officials proposed more expansionary actions, particularly in 1930, than were accepted by the rest of the System. Wicker (1966) finds, however, that Harrison ceased to advocate open market purchases once New York banks were no longer borrowing reserves. Thus, while the Federal Reserve would likely have pursued somewhat more expansionary policies had New York officials held more authority, the modest open market purchases of 1930 and 1931 were apparently consistent with the guidelines outlined by Strong.

In sum, during the Depression, the Federal Reserve continued to sterilize gold and currency flows and made limited open market purchases and discount rate reductions in response to the economic decline. Notable deviations from these policies occurred, such as the incomplete sterilization of gold outflows during the crises of 1931 and 1933. But it seems likely that monetary policy would have been somewhat more responsive to the Depression, particularly in 1930, had officials of the Federal Reserve Bank of New York been able to dominate policymaking in the way Strong had before his death.⁶¹ The general thrust of policy, however, appears consistent with that of Benjamin Strong.

INTEREST GROUP PRESSURE EXPLANATIONS OF FED BEHAVIOR

Until recently, most studies of Fed behavior have concluded that policymakers failed to perceive a need to take expansionary actions, despite deflation, rising unemployment and widespread bank failures. Some researchers now argue, however, that Fed officials were quite aware that their policies were contributing to the contraction. These researchers conclude that policymakers responded to interest group pressure and their own desire for in-

⁵⁹Indeed, except for a brief decline in M1 in 1927, the absolute quantity of money did not fall in 1924 or 1927, although its rate of increase declined. The Fed's strategy and the consequences of using bank borrowing as a policy guide are examined in greater detail in Wheelock (1991), ch. 3.

⁶⁰See also Schwartz (1981), pp. 41-42.

⁶¹It is by no means clear that Strong could have retained this degree of influence, as many officials believed that his

policies, particularly in 1927, had contributed to stock market speculation and the crash and depression that followed. See Wheelock (1991), ch. 4, for analysis of disagreements among System officials during the Depression.

fluence, rather than the public interest. Epstein and Ferguson (1984), for example, contend that a combination of ideology and conflicting interests explain the System's policy. And Anderson, Shughart and Tollison (1988) argue that "the restrictive monetary policy of the Fed in the 1929-33 period was not based on myopia but instead on rational, self-interested behavior" (p. 4).

Epstein and Ferguson (1984) focus their study on the Federal Reserve's \$1.1 billion open market purchase program of 1932. They ask why the Fed waited so long to begin an expansionary program, what had changed to cause the Fed to begin the program when it did, and what led to the decision to end the program.

To the first question, Epstein and Ferguson (1984) conclude that the liquidationist business cycle theory was dominant among Fed officials. Liquidationists believed that depressions were "vital to the long-run health of a capitalist economy. Accordingly, the task of central banking was to stand back and allow nature's therapy to take its course." (p. 963). This certainly was the opinion of some key officials, such as George Norris, who argued at the September 25, 1930, meeting of the Open Market Policy Conference:

We believe that the correction must come about through reduced production, reduced inventories, the gradual reduction of consumer credit, the liquidation of security loans, and the accumulation of savings through the exercise of thrift. These are slow and simple remedies, but just as there is no 'royal road to knowledge,' we believe there is no short cut or panacea for the rectification of existing conditions. . . .

We have been putting out credit in a period of depression, when it was not wanted and could not be used, and will have to withdraw credit when it is wanted and can be used.⁶²

Norris clearly believed that monetary policy had been too stimulative and was interfering with the natural process of liquidation and recovery.

Strong and other officials apparently held similar views during the recession of 1920-21. According to Wicker (1966):

In the view of System officials the money supply in 1920 was redundant (excessive) and should decline to restore the 'proper' relationship between prices, credit, and volume of production. The term most frequently used to describe this process was 'liquidation,' the necessity for which was not disputed by either the Board or by any other Federal Reserve official including Benjamin Strong. . . (p. 49) .

Most researchers argue that Strong's views changed significantly after the 1920-21 episode, however. Chandler (1958) writes:

Like most other Federal Reserve officials, [in 1920-1921 Strong] believed that some deflation of bank credit was essential and that some price reduction was inevitable and desirable. Within three years, Strong himself had rejected many of these ideas. A much smaller business recession in 1924 led him to advocate large and aggressive open-market purchases of government securities and reductions of discount rates to combat deflation at home as well as to encourage foreign lending (p. 181).⁶³

In rejecting the importance of Strong's death, Epstein and Ferguson (1984) implicitly deny that Strong sought to prevent loan liquidation during recessions by pursuing monetary ease or that he subscribed to the countercyclical policy guidelines he presented to the Governors Conference in 1926: "Should we go into a business recession. . . we should consider taking steps to relieve. . . the pressure. . . by purchasing Government securities. . . ." ⁶⁴

Epstein and Ferguson emphasize two additional reasons for the timing and extent of Fed actions during the Depression. First, in contrast to Friedman and Schwartz, they conclude that a lack of gold reserves did keep the Fed from making open market purchases in the fourth quarter of 1931. They argue further that, while the Glass-Steagall Act of 1932 lessened the problem for the System as a whole, some of the Reserve Banks were reluctant to continue the purchase program in 1932 because they lacked sufficient gold reserves.⁶⁵

Second, Epstein and Ferguson argue that Fed concern with member bank profits contributed

⁶²Quoted in Chandler (1971), p. 137.

⁶³See also Friedman and Schwartz (1963), pp. 249-54, Wicker (1966), pp. 57-66, and West (1977), pp. 173-204.

⁶⁴Quoted by Chandler (1958), p. 239-40.

⁶⁵Each Reserve Bank was required to maintain its own reserves. Pooling was not permitted, although the Banks could lend to one another.

to the timing and extent of open market purchases in 1932. During the first two years of the Depression, leading bankers generally argued for loan liquidation and lower wages. But the sharp increase in interest rates in the fourth quarter of 1931 reduced the value of bond portfolios and threatened the solvency of many banks. Bankers then began to press the Fed to support bond prices. Epstein and Ferguson argue that "a major goal of the [purchases of 1932] was to revive railroad bond values. . . and bond prices in general." (p. 967).

Just as constituent pressure contributed to the decision to make open market purchases, it also seems to have caused the program's end. During the Depression banks generally had shifted their bond portfolios toward short-term maturities. And, while the need to support bond prices was paramount in early 1932, as the year progressed short-term interest rates fell sharply and bank earnings declined. The decline in earnings was especially acute in Boston and Chicago because banks in those cities had unusually large holdings of short-term securities. Epstein and Ferguson conclude: "That the governors of the Boston Fed and, especially, the Chicago Fed should be early critics of the deflation program is therefore no mystery." (p. 972).

Declining interest rates and questions about the willingness of the United States to maintain the dollar's gold convertibility led to deposit withdrawals by foreigners, causing commercial banks to raise further doubts about the purchase program: "The continued loss of gold and deposits put many New York banks in an increasingly uncomfortable position. . . . Many complained that the deflation program had 'demoralized money and exchange markets'."⁶⁶ Thus, pressure from member banks experiencing falling earnings and deposit outflows and the desire of some Reserve Banks to protect their gold reserves caused the System to abandon its program of open market purchases.⁶⁷

Epstein and Ferguson (1984) were the first to explain Federal Reserve behavior during the Depression as a response to pressure from commercial bankers. Anderson, Shughart and Tollison (1988) push this view to the extreme, arguing that the principal aim of Fed policy during the Depression was to enhance the long-run profitability of member banks by eliminating nonmember competitors. This, in turn, benefited the Fed by increasing the proportion of the banking system under its regulatory control:

The fall in the money supply presided over by the monetary authority between 1929 and 1933 eliminated a large number of state-chartered and small, federally-chartered institutions from the commercial banking industry. The profits of those banks that survived. . . rose significantly as a result. Coincidentally, the monetary contraction expanded the proportion of the commercial banking system within the Fed's bureaucratic domain. Thus, rather than representing the leading example of bureaucratic ineptitude, the Great Contraction may instead be the leading example of rational regulatory policy operating for the benefit of the regulators and the regulated.⁶⁸

Nonmember banks made up 75 percent of the banks that suspended operations between 1930 and 1933. Failures were highest among small institutions located in rural areas. Policymakers typically argued that such failures were caused by bad management or transportation improvements that made many banks redundant. George Harrison, Governor of the New York Reserve Bank, for example, testified before the Senate Banking Committee in 1931 that:

. . .with the automobile and improved roads, the smaller banks. . . with nominal capital, out in the small rural communities, no longer had any reason really to exist. Their depositors welcomed the opportunity to get into their automobiles and go to the large centers where they could put their money.⁶⁹

⁶⁶Epstein and Ferguson (1984), p. 975.

⁶⁷In a comment on Epstein and Ferguson, Coelho and Santoni (1991) present econometric evidence suggesting that banks did not suffer reduced profits as a result of the Fed's 1932 purchases, and they question whether pressure from commercial banks caused the Fed to end its program. Indeed, they even doubt that expansionary policy was ended since the monetary base continued to rise. Epstein and Ferguson (1991) present additional qualitative evidence showing that banks thought that low interest rates had reduced their earnings.

⁶⁸Anderson, Shughart and Tollison (1988), pp. 8-9.

⁶⁹U.S. Senate (1931), p. 44.

From the Federal Reserve's inception, Fed officials argued that it was important that all banks join the System. Benjamin Strong argued in 1915 that "no reform of our banking methods in this country will be complete and satisfactory to the country until it includes all banks. . . in one comprehensive system."⁷⁰ Policymakers were likely less concerned with the failure of nonmember banks than they were with the health of member banks.⁷¹ But it remains to be shown that Federal Reserve policies were deliberately intended to cause the failure of thousands of nonmember institutions.

Anderson, Shugart and Tollison (1988) argue that "the Great Depression. . . was a by-product of economically rational behavior on the part of Federal Reserve member banks seeking rents through the elimination of their nonmember rivals." (p. 9) Member banks did not capture the Fed directly, they argue, but rather exerted pressure through members of the House and Senate Banking Committees. To test this hypothesis, the authors regress deposits in failed nonmember banks in each state on dummy variables indicating whether a state was represented on the House or Senate Banking Committees.⁷² They find that nonmember bank losses were higher if a state had a representative on the House Banking Committee. This, they argue, supports their view that the Fed deliberately caused nonmember bank failures to be highest in states having a congressman on the Banking Committee, thereby enhancing the long-run profits of the member banks that remained. The Fed's payoff came in 1933 when it was freed from having to return a portion of its revenues to the Treasury.⁷³

This explanation of Federal Reserve policy provokes a number of questions. Left unclear, for example, is why member banks had more influence over Congress than nonmember banks. Nor is it explained how the Fed was able to affect the fortunes of nonmember banks in partic-

ular states with the tools at its disposal. The Fed cannot control the destination of reserve flows generated by open market operations, and the discount window was not open to nonmember banks. Perhaps Fed officials could have selectively restricted credit to member banks that lent to nonmember banks in particular states, but it is doubtful that such a circuitous route would have had a large impact on losses.

Huberman (1990) casts further doubt on the Anderson, Shugart and Tollison (1988) view. He notes that, although 75 percent of banks that suspended during the Depression were nonmember banks, the ratio of nonmember to member bank suspensions from 1930 to 1933 was lower than it had been during the 1920s. Nonmember banks that suspended, moreover, reopened twice as often as member banks. Membership in the Federal Reserve System grew at a comparatively low rate during the Depression.

Santoni and Van Cott (1990) also report evidence contrary to the Anderson, Shugart and Tollison hypothesis. They calculate a share price index for large New York City member banks and show that, relative to both the wholesale commodity price index and the Standard and Poor's index, bank share prices declined substantially from 1929 to 1934. They show also that the index of bank stock prices was not affected by changes in the money supply, suggesting that monetary policy did not enhance the fortunes of banks in their sample.⁷⁴

CONCLUSION

The Federal Reserve's failure to respond vigorously to the Great Depression probably cannot be attributed to a single cause. Each of the explanations discussed in this article clarifies certain points about Fed behavior during the Depression. A number of contemporary observers, both within and outside the System, attrib-

⁷⁰Quoted by Chandler (1958), p. 80.

⁷¹Friedman and Schwartz, pp. 358-59, also make this point.

⁷²They include deposits in failed member banks, total bank deposits, and other control variables as additional regressors.

⁷³Anderson, Shugart and Tollison (1988), pp. 16-17.

⁷⁴Anderson, Shugart and Tollison (1990) reply by pointing out that member bank share prices rose dramatically relative to those of nonmember banks during 1930. Even the

share prices of "small" member banks rose relative to those of nonmember institutions. Neither study tests whether the profits of surviving member banks were enhanced in the long run, although the former note that in 1936 the average national bank profit rate was higher than in 1925. Unfortunately, it is impossible to determine whether the increase in bank profits was caused by the demise of nonmember banks or by New Deal reforms, such as deposit interest rate ceilings, deposit insurance, and increased chartering requirements, which reduced competition and enhanced bank charter values.

uted some of the blame to what they viewed as excessively easy monetary policy during recessions in 1924 and 1927. They argued that the Fed's actions had promoted stock market speculation and led inevitably to the crash and Depression. The best policy during the Depression, according to these observers, was to promote loan liquidation and wage rate reductions, to allow recovery on a "sound basis." While those officials subscribing to the liquidationist view did not win approval of open market sales, they were able to prevent significant open market purchases until 1932. It is likely that the Fed would not have made large purchases even then without pressure from major bankers and Congress.

The most important explanations of Federal Reserve behavior during the Depression, however, appear to be the dedication of policymakers to preserving the gold standard and their attachment to policy guides that gave erroneous information about monetary conditions. Benjamin Strong's death robbed the System of an intelligent leader at a crucial time and undoubtedly imparted a contractionary bias to monetary policy during the Depression. It seems clear, however, that Strong's death did not cause a fundamental change in regime. Strong believed in the gold standard, and he would not likely have done anything to jeopardize gold convertibility of the dollar. There was also little deviation from either the gold sterilization or the countercyclical policy rules that Strong had developed during the 1920s—at least until the fourth quarter of 1931, when maintenance of the gold standard became the overriding goal of policy. Thus, while leadership changes and interest group pressure probably had some effect, monetary policy during the Depression was not fundamentally different from that of previous years. Federal Reserve errors seem largely attributable to the continued use of flawed policies.

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Appendix

Data Sources

- All Commodities Price Index: Bureau of Labor Statistics (1926), pp. 24-25.
- Bank reserves: Board of Governors of the Federal Reserve System (1943), pp. 369-77, (member banks) and Friedman and Schwartz (1963), table A-2 (all banks).
- Bank suspensions and deposits in suspended banks: Board of Governors of the Federal Reserve System (1943), p. 283.
- Currency stock: Board of Governors of the Federal Reserve System (1943), pp. 369-77.
- Discount rate (Federal Reserve Bank of New York): Board of Governors of the Federal Reserve System (1943), pp. 440-41.
- Federal Reserve credit and its components: Board of Governors of the Federal Reserve System (1943), pp. 369-77, and *ibid*, pp. 136-44 (discount loans of reporting New York City member banks).
- Federal Reserve System balance sheet: Board of Governors of the Federal Reserve System (1943), p. 331.
- Gold stock: Board of Governors of the Federal Reserve System (1943), pp. 369-77.
- Gross national product: Department of Commerce (1960), *Historical Statistics of the United States*, series F1 (current dollar) and F3 (constant dollar).
- Implicit price index: Department of Commerce (1960), *Historical Statistics of the United States*, series F5.
- Index of Industrial Production: Board of Governors of the Federal Reserve System (1937), *Annual Report*, pp. 175-77.
- Interest rates: 1) Baa-rated: Board of Governors of the Federal Reserve System (1943), pp. 468-70; 2) long-term (daily average yield in June of each year on U.S. government bonds): *ibid*, pp. 468-70; 3) short-term (daily average yield in June of each year on U.S. government three- to six-month notes and certificates (1919 to 1933), and on Treasury bills (1934 to 1939): *ibid*, p. 460.
- Money supply: Friedman and Schwartz (1963), table A-1, col. 7 (M1) and col. 8 (M2).
- Unemployment rate: Lebergott (1964), p. 27.

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Manfred J.M. Neumann, a professor of economics at the University of Bonn, Germany, was a visiting scholar at the Federal Reserve Bank of St. Louis. Courtenay C. Stone made many helpful comments on an earlier draft. Lora Holman and Richard I. Jako provided research assistance.

Seigniorage in the United States: How Much Does the U.S. Government Make from Money Production?

MONEY IS CERTAINLY one of the greatest inventions of mankind. As Brunner and Meltzer (1971) have noted, its vast social productivity arises from the enormous reduction in transactions and information costs that it provides by serving as a standardized medium of exchange.¹ Of course, these benefits, like those of any other good or service, are not provided at zero cost. The revenue received from producing and maintaining a nation's money stock covers its production costs and, perhaps, some profit as well for its producers.

In monetary economics, the revenue from money creation is called "seigniorage." Unfortunately, this term has been subject to a variety of interpretations in the literature. After reviewing several traditional definitions, this article develops a new seigniorage measure, extended monetary seigniorage, and shows how it is distributed between the Federal Reserve, member banks and the U.S. Treasury during the 1951-90

period. Then, it examines the relationship between inflation and seigniorage during this period and shows that this relationship is analogous to the well-known "Laffer curve" that relates tax rates and tax revenues: seigniorage increases as inflation rises until the inflation rate reaches about 7 percent; thereafter, inflation and seigniorage are inversely related. Indeed, for each percentage point rise in inflation above 7 percent, the U.S. Treasury's share of seigniorage fell, on average, by \$1.4 billion (measured at 1982/84 consumer prices).

REVENUE FROM MONEY CREATION: SOME ANALYTICAL CONCEPTS

The term "seigniorage" dates back to the early Middle Ages, when it was common for sovereigns of many countries to finance some of their expenditures from the profits they earned

¹See Brunner and Meltzer (1971).

from the coinage of money. In the money literature, seigniorage has often been used interchangeably for either the total revenue or the profit derived from money production and maintenance. Of course, revenues and profits are identical only if costs are zero. Although theoretical analysis can be simplified by assuming that costs are zero, this assumption cannot be maintained in empirical applications. Since this article focuses on the empirical issues associated with seigniorage, the total revenue, cost and profits associated with money production must be carefully distinguished and the relevant notion of seigniorage must be clearly defined.

In the analysis that follows, seigniorage is defined as the revenue associated with money production and maintenance, rather than the resulting profit. Also, the focus is on the revenue accruing to the government and, therefore, on the creation of monetary base rather than the creation of deposits by private depository institutions.

Monetary theorists have used two main concepts of seigniorage in analyzing its relationship to inflation. These concepts are termed "opportunity cost seigniorage" and "monetary seigniorage."

Opportunity Cost Seigniorage

As its name indicates, opportunity cost seigniorage defines seigniorage as the total "opportunity costs" of money holders. It asks the question, What additional real income would individuals have earned if they had held interest-earning assets instead of non-interest-earning money? The real interest earnings foregone by holding money are called its opportunity cost.

Real opportunity cost seigniorage (s_o) is:

$$(1) s_o = rB/P,$$

where B denotes total base money holdings, r is the representative nominal rate of return on assets other than base money and P is the consumer price level.

This concept of seigniorage has been used as an elegant tool of theoretical analysis.² Its analytical attraction is that it derives the value of

seigniorage from the individuals' valuation of the services of money. It does this by identifying seigniorage with the interest income that individuals voluntarily forego by holding some of their wealth as money instead of as earning assets. This concept, however, presents some problems when it is used for empirical studies of seigniorage.

To make the concept of opportunity cost seigniorage operational for empirical analysis, some actual nominal rate of return must be chosen as the measure of the representative rate of return (r) in equation 1. Estimates of seigniorage will differ widely depending on which rate of return — for example, the federal funds rate, the average yield on government bonds or the rate of return on stocks of, say, the computer industry — is used. Thus, the problem is to determine a weighted average of observable asset returns that meaningfully approximates the true opportunity cost of money holders.

There is also a conceptual problem with using this definition of seigniorage: opportunity cost seigniorage does not equal the monetary authority's actual revenue from money creation.³ Because the structure of the monetary authority's portfolio differs markedly from the asset structure preferred by private investors, opportunity cost seigniorage does not provide a measure of the gains to the monetary authority from money creation and maintenance.

Monetary Seigniorage

The concept of monetary seigniorage permits a more straightforward and unambiguous empirical measurement. Monetary seigniorage (s_M^*) is defined as the net change in base money outstanding (ΔB), deflated by the consumer price level (P):

$$(2) s_M^* = \Delta B/P.$$

Monetary seigniorage measures the transaction value of non-monetary assets that money holders trade in to the monetary authority to obtain the desired increase in their base money balances (ΔB). Because the data necessary to calculate this measure are easily available, the concept of

²See Bailey (1956), Johnson (1969), Auernheimer (1974) and Barro (1982).

³For a different view, see Gros (1989), p. 2. He interprets equation 1 to represent "the interest savings the government obtains by being able to issue zero interest rate securities in the form of currency." This interpretation,

however, is valid only if the nominal rate of return (r) equals the effective yield on government debt and operating costs are zero.

monetary seigniorage has been widely used and measured by monetary economists.⁴

Extended Monetary Seigniorage

Unfortunately, the traditional concept of monetary seigniorage does not provide a complete account of the government's revenue from base money provision. It abstracts from the actual process of base money creation and, therefore, neglects the fact that the total flow of revenue in addition depends on the asset structure of the central bank.

The total flow of seigniorage to the government consists of two components. The first is the real value of the non-monetary assets that the central bank receives from the public in exchange for an increase in the monetary base. This is measured by the traditional concept of monetary seigniorage as defined above. The second component is the interest earnings the central bank receives on its stocks of non-government debt.

Since domestic private and foreign debtors have to service the debt held by the central bank, there is a flow of seigniorage to government even if the public does not desire to increase its cash balances. It is important to note, however, that only the interest earnings on non-government debt qualify. The Treasury's payment of interest on its debt held by the central bank is an inside transaction between government institutions that does not affect the resource transfer from the private money holders to government. Finally note that the central bank occasionally realizes capital gains (losses) by subsequently selling assets in the open market at higher (lower) prices than it had purchased them.

To take these additional components of the revenue from base money production and maintenance into account, let the interest rates on the monetary authority's holdings of private domestic debt (D) and official foreign debt (F) be denoted by d and f , respectively, and unrealized capital gains by G_R . Then, the extended monetary seigniorage, s_M , is:

$$(3) s_M = s_M^* + (dD + fF + G_R)/P.$$

Extended monetary seigniorage encompasses the traditional measure of monetary seigniorage. The new concept provides the seigniorage measure best suited for this study for two reasons. First, it directly measures the total real net flow of assets that the Federal Reserve System and U.S. Treasury receive from their monopoly over base money production; second, it can readily be computed from available data.

EXTENDED MONETARY SEIGNIORAGE IN THE UNITED STATES: A DETAILED FRAMEWORK FOR ANALYSIS

An analysis of extended monetary seigniorage in the United States can begin at either of two points: the "sources" side shows us how the gains were achieved, while the "uses" side tells us who received the gains.

Sources of U.S. Extended Monetary Seigniorage

From the sources side, the extended monetary seigniorage is shown by equation 3. In more detail, it can be written as:

$$(4) s_M = (\Delta B + dD + fF + G_R)/P,$$

$$\text{where } B = C + R_B + R_F.$$

It is important to note that, in this analysis, the monetary base (B) is defined more broadly than is usually the case. Here, official foreign deposits at the Federal Reserve System (R_F) are added to the usual monetary base components of currency in circulation (C) and reserves of depository institutions (R_B).⁵ This expanded definition is appropriate because the Federal Reserve obtains seigniorage from producing foreign deposits in precisely the same way it does from producing deposits for domestic depository institutions.

Uses of U.S. Extended Monetary Seigniorage

To develop the uses side of extended monetary seigniorage, two financial accounts are utilized: (1) the combined Federal Reserve-Treasury "monetary" balance sheet and (2) the income statement of the Federal Reserve System.

⁴See Friedman (1971), Calvo (1978), Fischer (1982), Dornbusch (1988), Grilli (1989) and Klein and Neumann (1990).

⁵"Foreign deposits" include the demand balances of foreign central banks, the Bank of International Settlements,

foreign governments, and international organizations, like IMF and World Bank; it excludes the Treasury's Exchange Stabilization Fund.

The U.S. monetary authorities' combined balance sheet can be written in first-difference form to show the changes that have occurred over some specific time period as follows:

$$(5) \Delta A_{FR} + \Delta D + \Delta F + \Delta C_C + \Delta OA \\ = \Delta B + \Delta R_G + \Delta K.$$

The left-hand side of equation 5 describes the *changes* in the Federal Reserve's assets that supply funds: outright purchases of U.S. Treasury and federal agency obligations (ΔA_{FR}), loans to depository institutions via the discount window and government securities bought under repurchase agreements (ΔD), the acquisition of gold, special drawing rights, and foreign exchange (ΔF), issuance of coin by the Treasury (ΔC_C) and other Federal Reserve net assets (ΔOA).⁶

The right-hand side of equation 5 describes the *changes* in the factors that absorb these funds: the monetary base (ΔB), deposits of the Treasury (ΔR_G) and the Federal Reserve System's capital accounts (ΔK).⁷ Again, note that the monetary base definition used in this analysis includes foreign deposits (R_F) held at the Federal Reserve.

The Fed's income statement is summarized in equation 6. The left-hand side describes the Fed's current income and expenses that give rise to its net revenue; the right-hand side of equation 6 shows how the Fed's net revenue is distributed.

$$(6) dD + fF + aA_{FR} + G_R + G_U - OC_{FR} \\ = Y_B + Y_{FR} + Y_{G,N}.$$

As noted earlier, d and f represent the interest rates that the Federal Reserve receives on its loans to the domestic private sector and its international assets, respectively; similarly, " a "

denotes the average interest return it receives on its portfolio of government securities bought outright.⁸

The next two terms are the "realized" profits (G_R) that the Fed receives from sales of its bonds and foreign assets at prices above those that it paid for them, and the "unrealized" profits (G_U) that result from the Fed's practice of marking the prices of its foreign exchange holdings to their market value. This accounting practice was introduced in 1978; before foreign exchange holdings were valued at historical rates.⁹

The term (OC_{FR}) measures the current operating costs or expenses of the Reserve Banks and the Federal Reserve Board minus the fees and reimbursements that the System collects for the services it sells to the banking industry, the Treasury and other government agencies. These service fees and reimbursements are "netted out" to remove receipts and expenses that are presumably unrelated to the Federal Reserve System's monetary authority role.

The right-hand side of equation 6 shows how the Federal Reserve's net revenue (Y) is distributed. The Fed pays its member banks statutory dividends (Y_B) on their paid-in capital and uses an amount Y_{FR} , which is equal to $.5\Delta K$, to raise the Reserve Banks' surplus capital to the level of its member banks' paid-in capital. The remainder of the System's net income is transferred to the U.S. Treasury under the heading of "Interest on Federal Reserve notes" ($Y_{G,N}$).¹⁰

Subtracting equation 6 from 5 and using the identity that the current issuance of coin (ΔC_C) equals the operating cost of the U.S. Mint (OC_M) plus the profit to the Treasury on the issuance of coin ($Y_{G,C}$) yields:

⁶In contrast to their practice of valuing the domestic assets at the original purchase price, the Federal Reserve Banks mark their foreign exchange holdings to the market. As a consequence, reported changes in the stock of the Federal Reserve System's international assets include net purchases at the actual transaction values (ΔF) and valuation gains (or losses) on the previous stock of these assets if foreign currency prices have changed. Because these valuation changes do not directly increase or absorb reserves, they are not included in equation 5. Incorporating them explicitly would simply introduce the same value on both sides of equation 5 and, hence, they would be "netted out" of the analysis.

⁷ R_G includes Treasury cash holdings.

⁸The Federal Reserve's international assets include the nation's gold stock on which it receives no interest earnings.

⁹Most European central banks do not mark their foreign exchange holdings to market values; instead, they evaluate their holdings at the lowest market price that occurred since they were acquired. As a result, their income statements never show unrealized profits from their foreign exchange holdings; however, they show unrealized losses whenever the prices of foreign currencies fall below their acquisition values.

¹⁰As an historical aside, prior to 1933, the income transfer to the U.S. Treasury was effected as a franchise tax based on a provision of Section 7 of the Federal Reserve Act. This provision was repealed in 1933 to permit Reserve Banks to restore their surplus accounts, after they had been cut to one-half by the enforced subscription to the Federal Deposit Insurance Corporation, founded in 1933.

$$\begin{aligned}
 (7) \Delta B + dD + fF + G_R \\
 &= (OC_{FR} + OC_M) + Y_{FR} + Y_B \\
 &+ (Y_{G,N} + Y_{G,C} - aA_{FR} - \Delta R_G) \\
 &+ \Delta(A_{FR} + D + F + OA - K) \\
 &- G_U,
 \end{aligned}$$

where: $B = C + R_B + R_F$, and

$$Y_{G,C} = \Delta C_C - OC_M,$$

$$Y_{FR} = .5\Delta K.$$

Dividing equation 7 through by the consumer price level (P) and using the definition of extended monetary seigniorage shown in equation 4 yields:

$$(8) s_M = s_C + s_B + s_G + s_I + s_L,$$

where: $s_C = (OC_{FR} + OC_M)/P$

$$s_B = Y_B/P$$

$$s_G = (Y_{G,C} + Y_{G,N} + \Delta A_{FR} - aA_{FR} - \Delta R_G)/P,$$

$$s_I = \Delta(D + F + OA - .5K)/P \text{ and}$$

$$s_L = (-G_U)/P.$$

THE USES OF EXTENDED MONETARY SEIGNIORAGE

Equation 8 shows how the extended monetary seigniorage in each period is used: (1) s_C is the cost of providing the public's desired real base money balances, including the costs associated with monetary policy and the Federal Reserve's contribution to bank supervision, (2) member banks receive s_B , the statutory dividends, (3) the government receives s_G for spending purposes, (4) the Federal Reserve uses s_I to increase its portfolio of assets other than government debt and (5) the Fed uses s_L to make up for book-losses resulting from adverse changes in asset prices.

It is useful to consider in detail the seigniorage distributed to the U.S. government, which may be termed "fiscal seigniorage."¹¹ Fiscal seigniorage can be written in two different ways.

The first way, using the government's budget constraint, is

$$(9a) s_G = (G - T + aA_o - \Delta A_o)/P,$$

where $(G - T)$ is the government's primary budget deficit or surplus and aA_o is the government's interest expenditure on its debt held outside the System (A_o). Equation 9a shows that fiscal seigniorage is the portion of the government's deficit that is not financed by borrowing from the public (ΔA_o). This means that fiscal seigniorage contributes to the finance of the primary budget deficit and of the interest expenditures on debt held by the public (outside the Federal Reserve System).

The second way of writing fiscal seigniorage, as shown in equation 8 above, is

$$(9b) s_G = [Y_{G,C} + (Y_{G,N} - aA_{FR}) + \Delta(A_{FR} - R_G)]/P.$$

Equation 9b breaks down fiscal seigniorage into three source components: the net revenue from issuing coin ($Y_{G,C}$), the net revenue received from the Federal Reserve ($Y_{G,N} - aA_{FR}$), and the net borrowing from Reserve Banks ($\Delta A_{FR} - \Delta R_G$).¹²

The treatment of net borrowing as a source of fiscal seigniorage is not an obvious one, since the Fed does not lend directly to the Treasury; instead it purchases Treasury securities in the open market. From a purely technical point of view, the Treasury receives the borrowed funds from the public on the date of security issue, not from the Fed at the later date when the public resells the securities to the Federal Reserve.

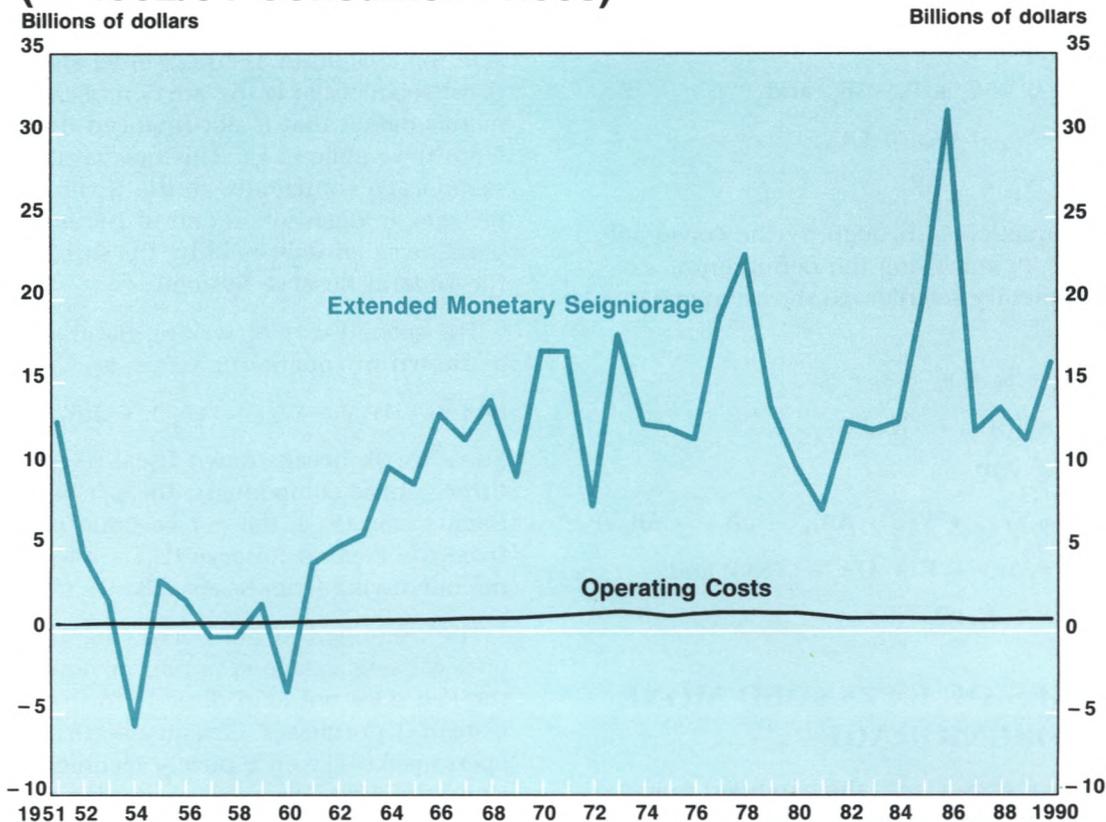
The above treatment of borrowing can be justified by the following considerations: First, from the economic point of view, what counts is not the first but the final placement of the Treasury securities. Thus, if the security dealers do not hold but resell the Treasury securities to Reserve Banks after a short duration, it is, in fact, the Fed that supplies the borrowed funds to the Treasury. At the same time, these transactions permit the security dealers to buy another load of new debt from the Treasury. Second, the bulk of the Federal Reserve's pur-

¹¹See Klein and Neumann (1990)

¹²In the theoretical literature, it is usually taken for granted that the net revenue received from the Federal Reserve ($Y_{G,N} - aA_{FR}$) cannot be negative since the government receives back as part of the transfer ($Y_{G,N}$) the interest paid on its debt to the central bank (aA_{FR}). This conclu-

sion, however, holds only if the costs of the monetary authority are assumed away. In the United States, for example, the Treasury's interest payments to the Fed typically exceed the Treasury's income received as "interest on Federal Reserve notes."

Figure 1
Extended Monetary Seigniorage and Operating Cost
(in 1982/84 Consumer Prices)



chases of Treasury securities is at the short-term end of the maturity spectrum. During the 1980s, for example, 83 percent of the securities purchased had maturities of less than one year. For this large portion of newly acquired debt, the time difference between the public's buying and reselling plays no significant role in the empirical analysis below based on annual observations. Third, some portion of new Treasury debt issued with maturities exceeding one year is also purchased by the Federal Reserve during the year of its issue. Finally, any approximation error with respect to the annual time unit ceases to play a role when annual average data for decades are examined below.

EMPIRICAL ANALYSIS

Figure 1 shows the magnitudes of the extended monetary seigniorage (s_M) and the monetary authorities' operating costs (s_C) as measured in 1982/84 dollars, from 1951 to 1990. During the

past four decades, the annual real value of extended monetary seigniorage has generally risen, while ranging over that period from $-\$6$ billion in 1954 to $\$31$ billion in 1986. As figure 1 indicates, a comparatively small portion of this amount—only about 7 percent on average—was used to cover the costs of producing the monetary base by the monetary authorities. Consequently, the government's production of base money has resulted in sizable and rising net profits, which are equal to the difference between the two curves in figure 1.

This result is shown in somewhat different form in table 1, which provides annual average data for each of the past four decades. During the 1980s, the annual real net profit from base money production and maintenance averaged more than $\$14$ billion, while, during the 1950s, it averaged $\$1$ billion per year. The steepest increase in extended monetary seigniorage occurred in the 1960s, when it jumped to almost $\$10$ billion annually, on average, up sharply

Table 1
The Uses of Extended Monetary Seigniorage¹

	1951-60	1961-70	1971-80	1981-90
Extended monetary seigniorage s_M	\$1,555	\$9,847	\$14,373	\$14,948
– Operating cost, s_C	454	695	1,039	746 ²
= Net profit	1,101	9,152	13,334	14,202
– Dividend payment to member banks, s_B	67	100	101	96
– Book-loss on foreign exchange, s_L	n.a.	n.a.	23 ³	–379
– Investment in loans and foreign assets, s_I	–1,397	–1,159	1,855	3,283
= Fiscal seigniorage, s_G	\$2,431	\$10,211	\$11,355	\$11,202
Memo:				
Traditional monetary seigniorage, S_M	\$1,498	\$9,683	\$14,414	\$13,945
Fiscal seigniorage as percent of real federal on-budget spending	1.0%	2.8%	2.1%	1.6%

¹Annual averages in millions of dollars, 1982/84 consumer prices.

²Net of revenue from priced services (\$501 million).

³Starting in 1978.

from its 1950's level. About 80 percent of this rise resulted from drastic increases in average reserve requirements during the 1960s.

As table 1 shows, the average annual total operating costs of the monetary authorities increased by about 50 percent during the 1970s from its earlier levels. This rise primarily reflects the Federal Reserve's efforts to introduce a variety of services in the 1970s associated with the payments mechanism. The monetary seigniorage used for covering operating costs fell in the 1980s when the Fed began to charge explicitly for these services.¹³

Dividend payments to member banks on their paid-in capital (s_B), which run about \$.1 billion per year, and the System's accounting losses on its holdings of foreign exchange (s_L) represent

fairly negligible uses of the total monetary seigniorage. As table 1 indicates, these accounting adjustments began in 1978, when the Fed started valuing its foreign exchange holdings at current market prices.¹⁴

During the 1980s, the Federal Reserve System accounted an annual valuation gain on its foreign exchange holdings averaging \$380 million. This gain reflects the appreciation of the Deutschmark and yen against the dollar from 1985 to 1987 and again in 1989/90. Occasionally, the Fed also realized profits on foreign exchange holdings; they averaged \$151 million per year during the 1980s.

As in all countries, the bulk of the extended monetary seigniorage went to the government. The average annual flow of fiscal seigniorage

¹³For example, if the cost of priced services was added to the operating costs for the 1980s, it would raise the figure shown by almost 75 percent.

¹⁴During the 1970s, the Fed's realized (as opposed to accounting) losses on foreign exchange amounted to about \$148 million per year in real terms. These losses resulted from foreign exchange intervention attempts to stem the

sharp decline in the value of the dollar during the 1970s. They appear, of course, on the sources side of the seigniorage equation and, hence, reduce the total monetary seigniorage collected; see equation 4.

Table 2
The Components of Fiscal Seigniorage¹

	1951-60	1961-70	1971-80	1981-90
U.S. government debt bought outright by Fed	\$2,295	\$10,525	\$12,117	\$10,462
+ Interest received on FR-notes net of interest paid to Fed	- 529	- 541	- 1,233	455
+ Coin issued net of outlays of U.S. Mint	591	428	1,092	587
- Change in Treasury's deposits with Fed	74	- 201	- 621	- 302
= Fiscal seigniorage	\$2,431	\$10,211	\$11,355	\$11,202
Memo:				
Interest received on FR-notes	\$1,671	\$5,214	\$10,489	\$15,954
Interest paid to Federal Reserve	\$2,200	\$ 5,755	\$11,722	\$15,499

¹Annual averages in millions of dollars, 1982/84 consumer prices.

rose from \$2.4 billion during the 1950s to \$11.2 billion in the 1980s. The dominating source component of fiscal seigniorage is the outright acquisition of government securities by the Fed. Just how important it is can be seen in table 2; for all practical purposes, it matches the total.

This observation underscores the fact that the seigniorage flow to government must not be identified with the Fed's payment to the Treasury of "interest on Federal Reserve notes." In servicing the debt held by the Fed, the Treasury makes interest payments of roughly the same order of magnitude as the Fed pays to the Treasury (see the bottom lines in table 2).¹⁵ Indeed, the Fed's portfolio of U.S. government securities can be interpreted as an interest-free loan to the Treasury.

While during the 1970s and the 1980s fiscal seigniorage amounted to 80 percent of monetary seigniorage collected, it even exceeded the

total flow during the 1950s and the 1960s. How was it possible that the government consumed more seigniorage than was collected? The answer to that question is asset substitution in favor of U.S. government debt: for a given base money stock, the Fed can reduce its loans to the banking sector or sell foreign assets and use the proceeds for buying outright government debt. For example, if the Fed replaces foreign assets worth \$100 million with Treasury bills of the same amount, it foregoes foreign interest earnings of, say, \$5 million. As a result, the current flow of fiscal seigniorage is increased by \$95 million (see equation 9b).¹⁶ To be sure, this is a one-time effect. During subsequent periods, the flow of fiscal seigniorage will be smaller than otherwise, because of the lost stream of foreign interest earnings.

As table 1 indicates, the observed differences between the annual flows of monetary and fiscal seigniorage are largely due to asset substitution. During the 1950s and the 1960s, the Fed

¹⁵Barro (1982) was not aware of this, when he identified the interest on Federal Reserve notes as the revenue from money creation. But note that Barro would be correct if the Fed, like the Deutsche Bundesbank, would mainly hold earning assets other than government debt.

¹⁶While the discussed transaction reduces the Fed's interest earnings on foreign assets, it raises the interest earnings on the portfolio of Treasury securities. But, as noted above, this does not affect the net flow of fiscal seigniorage.

raised the annual flow of fiscal seigniorage above the flow of extended monetary seigniorage by replacing non-government debt worth more than \$1 billion each year, on average, with U.S. government securities. The reverse policy was chosen thereafter so that the annual flow of fiscal seigniorage fell behind monetary seigniorage by an average of almost \$4 billion during the 1980s.

While the continuous flow of fiscal seigniorage helps to finance the federal budget, it is a fairly small source of funds. On average, it contributed about 2 percent to the finance of federal expenditures over the past 40 years.

Seigniorage and Inflation

In the monetary economics literature, seigniorage is often discussed and analyzed in terms of an "inflation tax," a term that was coined by Milton Friedman (1953). This association reflects the fact that, other things the same, a nation's monetary authorities can increase monetary seigniorage by increasing the supply of base money relative to its demand. Because the resulting rising price level reduces the real value of the public's base money holdings, the public will demand more nominal base money balances to make up for the price-level-induced decline in its real cash balances. As a result, the price rise produces an increase in monetary seigniorage.

Extended monetary seigniorage, however, will not rise in some fixed proportion to inflation; the demand for real cash balances is inversely related to the rate of inflation. Hence, the increase in seigniorage associated with higher and higher inflation becomes smaller and smaller; eventually, some inflation rate is reached at which monetary seigniorage is maximized. Thereafter, higher inflation will reduce the level of seigniorage as the inflation-induced effect dominates the price-level effect on the public's demand for real cash balances.

In sum, monetary theory predicts that seigniorage rises with inflation but falls once the in-

flation rate has passed a certain threshold. Thus, the predicted relation resembles the shape of the Laffer curve in public finance where the revenue from the income tax first rises with the effective tax rate but begins to decline once the disincentive effect of too high a tax rate becomes dominant.

Monetary theorists have applied profit-maximizing conditions for a monetary authority to generate the seigniorage-maximizing rate of inflation.¹⁷ This concept, however, is unlikely to yield much insight in the actual behavior of monetary authorities. While, in history, monetary authorities of several countries have repeatedly produced larger inflations in the attempt to accommodate fiscal problems, central banks, in general, are not profit-oriented organizations, and ascribing profit-maximizing motives to them is misleading.¹⁸

Thus, instead of looking for some theoretically justified story about inflation and the motives of the Federal Reserve System, we are better off by simply looking at the "stylized facts" about the relationship between inflation and the extended monetary seigniorage in the United States. Figure 2 provides one way of assessing this relationship. The points in the diagram show the rate of inflation and the associated monetary seigniorage in each year from 1951 to 1990. As expected, the data reveal an initial positive relationship between inflation and extended monetary seigniorage. As also expected, however, this positive association slowly disappears, then becomes negative for sufficiently high rates of inflation. Thus, the empirical relationship resembles the shape of a Laffer curve.

The curve drawn in figure 2 shows the results of estimating extended monetary seigniorage (s_M) as a quadratic function of the rate of inflation (π):

$$(10) s_M = a_0 + a_1\pi - a_2\pi^2 + \epsilon,$$

where ϵ is a white-noise residual. The estimated parameters imply that monetary seigniorage be-

¹⁷Consider the traditional concept of monetary seigniorage, as defined above by equation 2. It can be rewritten as:

$$(a) s_M = (\Delta B/B)(B/p).$$

Next, assume a standard money demand function:

$$(b) B/p = y \exp[-\lambda(r + \pi)],$$

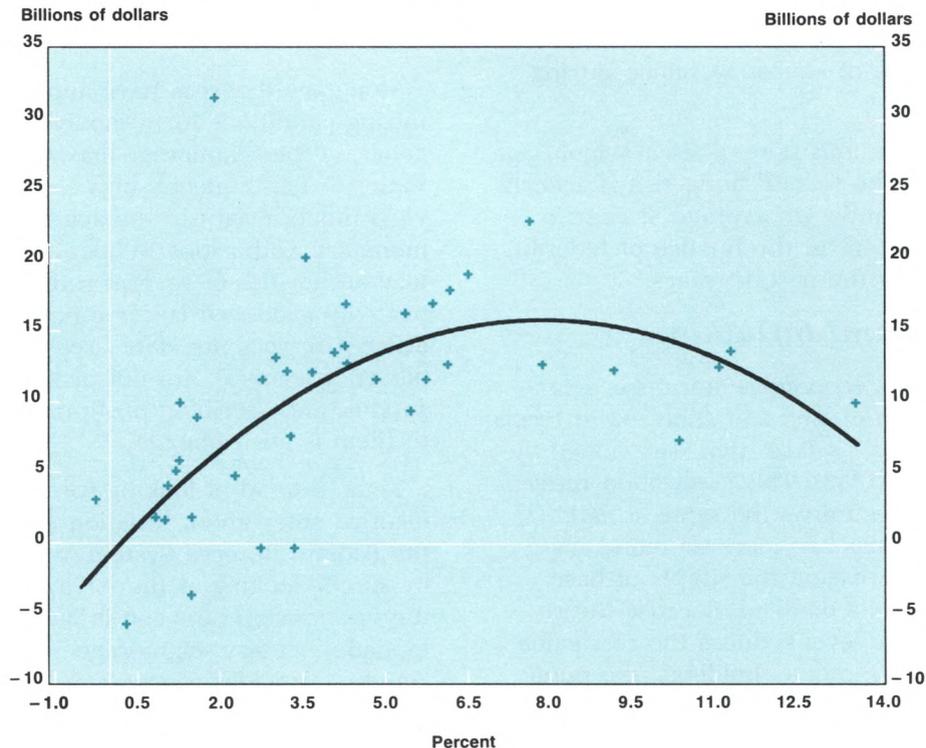
where (y) is real income, (r) is the real rate of interest and π the inflation rate. Finally, assume a steady-state equilibri-

um in which y and r are constant. This implies: $\pi = \Delta B/B$. Maximizing equation a subject to equation b yields the seigniorage-maximizing rate of inflation:

$$(c) \pi^{opt} = 1/\lambda.$$

¹⁸For a different view, see Toma (1982).

Figure 2
**Extended Monetary Seigniorage and Inflation
 (1982/84 Consumer Prices)**



gins to decline once inflation exceeds a rate of 7.9 percent.¹⁹

From the point of view of the U.S. government, fiscal seigniorage is more interesting than monetary seigniorage because the former measures what the government actually receives for budget finance. As figure 3 shows, fiscal seigniorage is quite similarly related to the level of inflation, except that it reaches a maximum at an inflation rate of 7.2 percent.²⁰

These estimates suggest that high inflation, at least more than 7 percent or 8 percent per year, has been less profitable for the U.S.

government when monetary or fiscal seigniorage alone are considered. This is demonstrated in table 3, where average annual seigniorage flows are compared over different inflation ranges. During the high inflation years, when inflation exceeded 9 percent annually, fiscal seigniorage averaged 7.7 billion per year. This is about 5 percent lower than it averaged during the low inflation years and even 45 percent lower than during the medium inflation years.²¹

CONCLUSION

The government's monopoly in issuing base money yields profits that facilitate its fiscal

¹⁹Estimating equation 10 with a dummy for 1986 yields: $a_0 = -979$ (-0.55), $a_1 = 4,325$ (5.94), and $a_2 = 269$ (4.73), numbers in parentheses are t-values. $\bar{R}^2 = .62$, DW = 1.52.

²⁰The respective curve is computed from estimating equation 10 with fiscal seigniorage as the dependent variable. Denoting the estimated parameters by b yields: $b_0 = 1,233$ (0.56), $b_1 = 3,123$ (3.51), $b_2 = 217$ (3.07), $\bar{R}^2 = .28$, DW = 1.88.

²¹While it may be tempting, given the evidence presented in table 3, to conclude that the U.S. government should prefer inflation in the 4.6 percent to 9 percent annual range, it would be a mistake to do so. First, there are other social (and governmental) gains from lower inflation that are not examined here. Second, and perhaps more relevant, the U.S. rate of inflation has been below 4.5 percent for 25 of the 40 years between 1951 and 1990.

Figure 3
Estimated Seigniorage and Inflation
(in 1982/84 Consumer Prices)

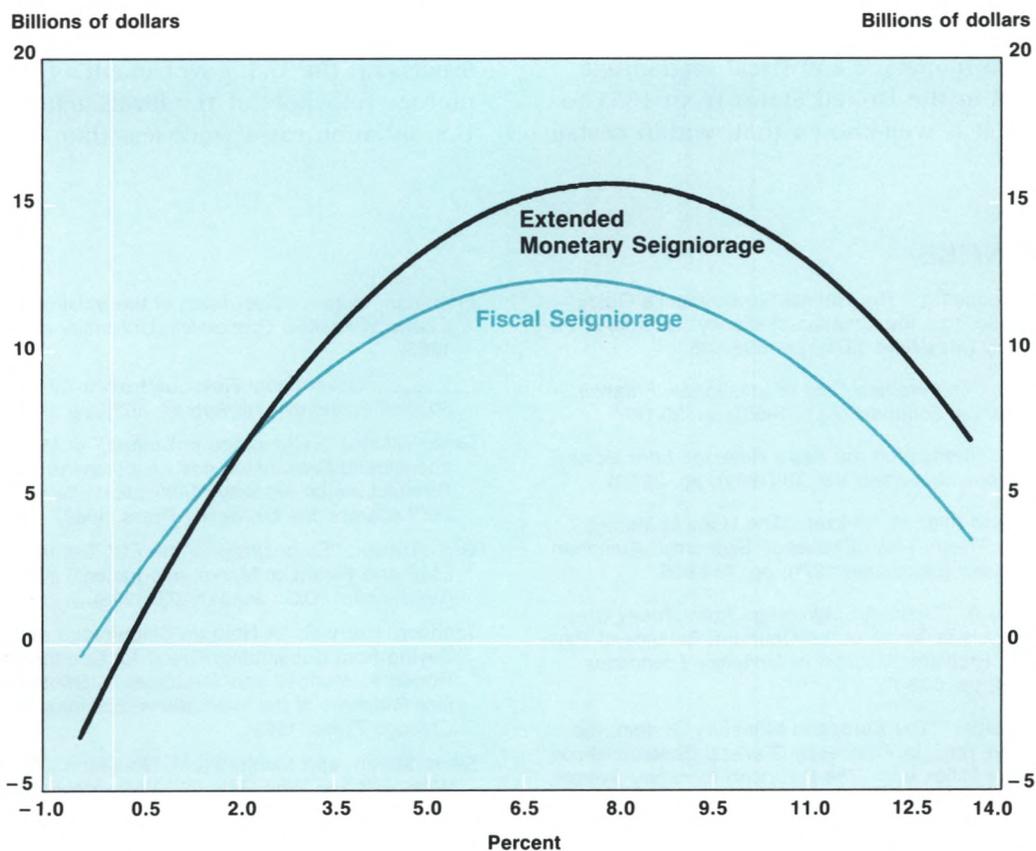


Table 3
Seigniorage and Inflation¹

	Inflation range		
	- 0.3 to 4.5%	4.6 to 9.0%	9.1 to 13.6%
Monetary seigniorage, s_M	\$8,056	\$15,030	\$11,106
Fiscal seigniorage, s_G	\$8,096	\$11,117	\$ 7,685
Number of years	25	10	5
Average inflation rate	2.3%	6.2%	11.1%

¹Annual averages in millions of dollars, 1982/84 consumer prices.

finance. This paper developed a new measure of monetary seigniorage and presented a framework for analyzing and measuring the total seigniorage flow from base money production and its allocation to various uses, including fiscal finance, in the United States.

In addition, the paper analyzed the relationship between monetary and fiscal seigniorage and inflation in the United States from 1951 to 1990. While it is well-known that, within certain

limits, governments are able to increase their seigniorage flows through higher inflation, the limits to such actions are not as well-known. The evidence presented here suggests that the U.S. government's fiscal seigniorage declines when the rate of inflation exceeds 7 percent. Indeed, in those years when inflation exceeded 9 percent, the U.S. government's fiscal seigniorage fell short of the levels achieved when U.S. inflation rates were less than 4.5 percent.

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The FOMC in 1991: An Elusive Recovery

AS 1991 BEGAN, the U.S. economy was in the second quarter of a downturn in aggregate economic activity. Real output, as measured by the gross national product (real GNP), had fallen in the fourth quarter of 1990 at a 2.5 percent annual rate; the first quarter of 1991 would turn out to be even worse, with output falling at a 2.8 percent annual rate. As the year wore on, the pace of real output growth turned positive, although it seemed to stall somewhat toward the fourth quarter. The recession and the subsequent slow recovery put pressure on the primary policymaking group of the Federal Reserve, the Federal Open Market Committee (FOMC), to take action to spur greater output growth in the short term.¹ This paper provides a chronologically based assessment of the Committee's policymaking in this environment. As such, it provides a case study in the making of monetary policy during the recovery phase of the business cycle.

In order to put FOMC decision making into context, a framework for discussion is outlined. The framework is intended to provide a basis for thinking about how monetary policy is made and why, in a broad brush sense, certain concerns reign paramount in Committee deliberations. The framework is meant to be qualitative and suggestive, so as not to belabor the technical details of theoretical arguments.

Generally speaking, the FOMC has well-defined goals but faces two daunting uncertainties when making decisions. One is that the immediate past, current and future path of real output is not easily surmised by considering current data. This inhibits the Committee's ability to assess the state of the economy in a timely fashion and, thus, to make short-run policy decisions. Secondly, the Committee has a difficult time assessing its own policy stance at a point in time, primarily because alternative measures of policy actions sometimes send conflicting signals.

The next section provides the framework for understanding FOMC decision making. The chronology is presented in the subsequent section. The final section provides summary comments.

A FRAMEWORK FOR ANALYZING FOMC POLICY ACTIONS

To understand the FOMC's decision making in 1991, a general framework or reference point is useful in order to put into focus the arguments presented for various policy actions. For the most part, FOMC members and the Board staff, the primary participants in these meetings, present broad points of view and avoid technicalities. Disagreement, when it occurs, is often a matter of the interpretation of recent economic

¹See the shaded insert on the following page for a discussion of the structure of the FOMC in 1991.

The Organization of the FOMC

The Federal Reserve System consists of 12 regional Federal Reserve Banks located in major cities across the country, with the administrative offices of the Federal Reserve Board of Governors in Washington, D.C. The Federal Reserve Board consists of seven members, and each of these members has voting rights on the Federal Open Market Committee (FOMC). The president of the New York Federal Reserve Bank also is a permanent voting member of the FOMC. The remaining 11 Reserve Bank presidents attend meetings and present views, but only four of the 11 have voting privileges at any one meeting. The voting rights are held for terms of one calendar year and rotate among these presidents annually.

The Committee typically meets eight times per year, as it did in 1991, and sometimes consults by telephone between scheduled meetings. At the end of each meeting, the Committee agrees on a directive to issue to the Federal Reserve Bank of New York; the

directive is implemented by the Manager of Domestic Operations. The directive contains instructions for the conduct of open market operations until the next regularly scheduled meeting.

A summary of each FOMC meeting is released to the press within a few business days following the next regularly scheduled meeting and is subsequently published in the *Federal Reserve Bulletin*. The summary, known as the "Record of Policy Actions of the Federal Open Market Committee," is prepared by the Board staff and approved by the Board. It typically contains: (1) a synopsis of recent economic data, (2) a review of recent open market operations and money market conditions, (3) a Board staff projection of likely near-term economic developments, (4) a summary of Committee deliberations, (5) the policy directive along with a Record of votes and any dissenting comments, and (6) a summary of other policy matters discussed.

developments, but sometimes concerns the amount of weight to attach to certain broadly theoretical arguments. Before beginning an analysis of Committee deliberations, it is therefore helpful to consider, in a nontechnical way, the ideas that underlie Committee debate. A framework of this sort was presented in Bullard (1990), and this section briefly describes that approach.

FOMC Monetary Policy Objectives

The Committee states its goals for monetary policy repeatedly in documents released to the public throughout the year. In particular, at the conclusion of each meeting, the Committee issues a directive which contains, with other information, a statement of the following type:

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability, promote a resumption of sustainable growth in output, and contribute to an improved pattern of international transactions.²

This statement of objectives has three parts. The first goal, to foster price stability, is based on the idea that FOMC policy, over long periods of time, can influence the inflation rate. The second objective, to promote sustainable growth, is associated with the idea of countercyclical monetary policy, in particular that the FOMC can influence real output over short time horizons, say, less than a year.³ The third part of the statement of objectives, an improved pattern of international transactions, is more oblique,

²Federal Reserve press release, March 29, 1991, p. 22. The Federal Open Market Committee releases its record of policy actions (in the remainder of this article, simply "the Record") for a particular meeting shortly after the next regularly scheduled meeting. The press releases referred to in the remainder of this article are dated May 17, 1991; July 5, 1991; August 23, 1991; October 4, 1991; November 8, 1991; December 20, 1991; and February 7, 1992. All press releases will be referred to by month.

³The statement of objectives quoted above is noteworthy for the inclusion of the words "a resumption of." Available information suggested that real output was declining at the time this statement was released, and hence the more standard phrase, ". . . promote sustainable growth in output," was modified. Later in the year, when real output again appeared to be growing, albeit rather slowly by historical standards, the term "resumption" was dropped.

and beginning about midyear, this phrase was dropped from the Committee's statement. Therefore, for the last five meetings of the year, the statement of objectives was:

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output.⁴

In this article, focus will be placed on this last statement of objectives, as the price stability and real output goals are consistently mentioned throughout the year, and the international goal is not.

Controlling Inflation

A widely held view among economists is that inflation, over long time periods, is closely related to the rate of money growth within a country. In fact, the idea is that the rate of money growth eventually translates directly to the rate of inflation. The theory, which dates to Hume (1742), is broadly supported by international cross-section evidence, which shows that countries choosing high rates of money growth over a decade or more tend to have the highest inflation rates. The United States, for instance, has experienced an average annual rate of inflation of 5.4 percent in the 1980s, which was associated with an average annual money growth (M2) rate of 7.5 percent. Iceland, on the other hand, experienced 32.1 percent average annual inflation over the same period, associated with a money growth rate of 38.2 percent. Similarly, Mexico had 50.1 percent average annual inflation associated with money growth of 45.9 percent. A look at other countries in which data are available reveals similar patterns.

Of course, despite the fact that such views are widely held, the theory is incomplete. It is not clear, for instance, what constitutes a sufficiently long time period. In addition, as the examples given above indicate, the relationship is far from exact, even over a decade or more. Finally, the theory by itself gives no indication of what to expect from, say, a short but intense burst of money growth. Despite these caveats, the theory and evidence are sufficiently strong to suggest that, in the long run, inflation is a policy-induced phenomena, and thus that control of inflation is an important aspect of central bank policymaking.

Sustaining Real Output Growth

The notion that monetary policy actions can significantly affect the growth of real output over short time horizons, such as a quarter or a year, is deeply seated among macroeconomists. It is also controversial and largely unresolved. Nevertheless, the Committee has generally adopted the view that monetary policy actions do have material effects on real output growth within the following few quarters. It is not difficult, for instance, to find statements in the Record that attest to members' views in this regard. For instance, at the February meeting, there was talk that "inadequate monetary stimulus . . . could fail to cushion possible further deterioration in the economy."⁵ Similarly, in March, "if the economy was indeed near its recession trough, additional easing would not be necessary;" in May, "the System's earlier easing actions . . . had provided a good deal of insurance against cumulative further weakening in business activity;" and in July, "policy was positioned to foster a sustainable economic expansion."⁶ Statements of a similar sort can be found throughout the year.

Since the Committee operates in an environment in which the short-term effects of monetary policy on real output are taken for granted, in this paper these effects are simply assumed to exist and to be substantive, with due notice to the ongoing debate on that topic in academic circles. Generally speaking, it will be assumed that an "easing" of monetary policy is associated with a temporary gain in output (relative to what would have occurred without the easing) a few quarters hence, and that a "tightening" of policy has the reverse effect.

The Role of Forecasts in Short-Run Policy Actions

It is important to note that these postulated real output effects occur only with a lag, which many economists suppose is at least one quarter and may be as long as a year or more. The notion of lagged policy effects is an important theme in Committee debates, as it forces members to form opinions about the path of real output several quarters into the future. Such forecasting is notoriously difficult. The inability to forecast accurately tends to produce uncer-

⁴February press release, p. 16.

⁵March press release, p. 15.

⁶Respectively, the May press release, p. 12, the July press release, p. 12, and the August press release, p. 14.

tainty among policymakers when choosing appropriate short-run policy actions.

If the members of the FOMC were concerned solely with long-run policy, as would be suggested by the available theory and evidence on inflation, they would presumably have much less concern for current forecasts of real activity over the next few quarters. But the Committee is not concerned solely with inflation, as their statement of objectives attests; therefore, the Committee members and Board staff have an acute concern for the daily goings-on of the U.S. economy. In fact, the Record consists primarily of a recitation of recent economic developments as captured in various measurements produced by the Federal Reserve or the U.S. government, often with an associated inference about what seems to be in store for real activity. The idea that policy actions taken today will affect real output in the not-too-distant future drives the concern for up-to-the-minute information about the status of economic activity. Short-run forecasting is a necessary ingredient of any strategy based on the notion of significant short-run monetary policy effects on real output.

Measuring the Policy Stance

The Committee also has some difficulty in assessing the policy stance at a point in time because various measures of the thrust of policy can give conflicting signals. The Record and other Federal Reserve documents describe policy in terms of whether it is "tight" or "easy." These vague terms, which have a long history of use within the Federal Reserve, cannot be associated directly with System actions. This has created the situation in which two observers, and indeed Committee members themselves, can easily disagree about the thrust of monetary policy at a point in time. To see how this might be so, consider how most monetary policy actions are implemented.

Commercial banks must maintain reserves against certain types of deposits. Reserve positions are maintained on a two-week basis, so that a particular depository institution might find itself either over- or under-supplied with reserves at a point in time. These reserves are traded among banks on a daily basis in the federal funds market, and the interest rate in this

market is the federal funds rate. The Federal Reserve can supply or drain reserves from the system through intervention in this market. Such *open market operations* are carried out by the Federal Reserve Bank of New York based on the directives from the FOMC.

Given a conventional downward-sloping demand for reserves, the Federal Reserve can increase (decrease) the federal funds rate by decreasing (increasing) the supply of reserves. Total reserve supply is subject to close control by the System. A standard analysis relates the sum of total reserves and currency, the *monetary base*, and measures of the money supply, such as M2, by a proportional factor called the *money multiplier*.⁷ Thus, increases in total reserves, increases in the money stock and decreases in the federal funds rate are simply different aspects of the same mechanism in this simple framework and are associated with the term "ease." "Tight" policy would involve movements of these variables in opposite directions.

Since, generally speaking, lower *long-term* interest rates are associated with higher rates of investment and greater consumer purchasing, which in turn are associated with higher levels of real output, easy policy is often thought to be stimulative in the short run. Tight policy is viewed as having the reverse effect. Of course, the federal funds rate is only a *short-term* interest rate, and there might be some question whether movements in a short rate will actually be reflected in the spectrum of interest rates. Theories on this topic abound, and, as will be apparent in the following chronology, members of the Committee sometimes disagree about the net interest rate effects of a lower federal funds rate.

The essential problem in practice is that total reserves, the federal funds rate and the money supply can, and sometimes do, give conflicting signals about whether monetary policy is actually easy or tight. Casual consideration of the above analysis suggests why this might be so. In particular, the demand for reserves is probably shifting over time in response to the level of economic activity, implying that the federal funds rate could rise or fall even when reserves are constant. Additional reserves, therefore, need not signal a lower federal funds rate. M2 growth might also be affected by vagaries in real activity.

⁷For a recent discussion, see Garfinkel and Thornton (1991).

These and other concerns produce the fundamental problems in assessing the FOMC's policy stance at a point in time.

The Federal Reserve also occasionally lends reserves to commercial banks directly through the *discount window*. The rate on these loans, the *discount rate*, is administered by the Board of Governors, and the FOMC plays no official role in changing it. The volume of loans made by the Federal Reserve at the discount rate is relatively small, so that the direct impact of a change is viewed as relatively unimportant. In the past, however, the discount rate has been set somewhat below the prevailing federal funds rate, so that, in 1991, when the federal funds rate declined through most of the year, a lower discount rate was sometimes taken by market participants as a signal of a lower federal funds rate at some point in the future. In fact, in 1991, the Committee often allowed a lower discount rate to *show through* to the federal funds rate, meaning that the funds rate was allowed to fall when the discount rate was lowered. Therefore, discount rate changes play an important role in the following chronology, even though the discount rate is not, strictly speaking, under the jurisdiction of the FOMC.

Based on the simple framework outlined above, the three indicators of policy that will be considered in this paper are the federal funds rate, the M2 monetary aggregate and total reserves.⁸ The behavior of these indicator variables in 1991 is summarized in figures 1-3; reference will be made to these graphs throughout the chronology. Figures 4-7 provide a synopsis of the recent behavior of several other key variables—namely, real output, total nonfarm payroll employment, industrial production and consumer confidence.

The framework that will be used to summarize FOMC decision making is now complete. The Committee states its major objectives frequently: to control inflation and maintain sustained growth in real output. International evidence suggests that low inflation rates can be achieved by maintaining low rates of money growth. The real output effects of monetary policy are less certain, but summaries of Com-

mittee deliberations indicate that members believe temporary easing can mitigate downturns in economic activity. Pursuit of this objective requires an assessment of the current and future path of real output, but knowing whether the incoming data signal a change in direction for the economy is complicated by lags in data releases and errors in economic forecasts. To summarize FOMC policy actions, some measure of the monetary policy stance is required. Since various measures sometimes suggest differing interpretations of the thrust of monetary policy, several indicators will be employed.

A CHRONOLOGY OF FOMC DECISION MAKING IN 1991

On the whole, the chronology in this section indicates that the FOMC became increasingly pessimistic about the prospects for a sustained recovery as 1991 progressed, and this led to particularly aggressive easing actions late in the year.⁹ In the first meetings of 1991, when a substantial amount of information suggested a decline in real output, members were nevertheless hopeful that easing implemented since the December 1990 meeting would be enough to lay the groundwork for a moderate recovery beginning in the spring and summer. In fact, several directives in the first half of the year called for steady policy with no bias toward ease, although some easing actions actually were implemented according to the Record.¹⁰ Beginning in August, in an atmosphere of increasing concern about the strength of the recovery, the Committee turned to asymmetric language toward ease in the directive. The trend toward easing actions peaked in the November directive, with the Committee voting to support immediate ease with additional bias toward ease during the intermeeting period.

As emphasized in the chronology, however, merely outlining the content of Committee directives does not provide a complete summary of monetary policy during this period. At times, for instance, the thrust of policy is open to interpretation. In addition, policy changes are sometimes implemented via other methods, such as intermeeting conference calls, or in concert with discount rate changes.

⁸While there are many other possible indicators of monetary policy, in this article these three are the only ones considered.

⁹A summary of FOMC actions in 1991 is contained in table 1.

¹⁰The Committee sometimes uses so-called asymmetric language in the directive, which is one way of making policy changes contingent on intermeeting developments. This phenomena is also sometimes described as "bias" in the directive.

Table 1

Important Dates in the Chronology of 1991 FOMC Actions

The following summary is based solely on statements in the Record regarding policy actions. See the text for a discussion of measures of the thrust of policy.

Early January. An easing action is implemented.

February 1. The Board of Governors approves a reduction in the discount rate to 6 percent from 6.5 percent. The FOMC allows the entire amount of the cut to show through to the federal funds rate.

February 5-6. The FOMC meets. The target range for M2 growth is kept at 2.5 to 6.5 percent. The directive calls for an unchanged policy with some bias toward ease depending on intermeeting developments.

Early March. An easing action is implemented.

March 26. The FOMC meets. The directive calls for an unchanged policy without bias.

End of April. The Board of Governors cuts the discount rate from 6 percent to 5.5 percent. The FOMC allows part of the 50 basis-point decline to show through to the federal funds rate.

May 14. The FOMC meets. The directive calls for an unchanged policy without bias.

July 2-3. The FOMC meets. The target range for M2 growth is kept at 2.5 to 6.5 percent. The directive calls for an unchanged policy without bias.

Early August. An easing action is implemented.

August 20. The FOMC meets. The directive calls for an unchanged policy with some bias toward ease depending on intermeeting developments.

Mid-September. The Board of Governors lowers the discount rate from 5.5 percent to 5 percent. The FOMC allows part of the decline to show through to the federal funds rate.

October 1. The FOMC meets. The directive calls for an unchanged policy with some bias toward ease depending on intermeeting developments.

End of October. An easing action is implemented.

November 5. The FOMC meets. The directive calls for immediate ease with bias toward additional ease depending on intermeeting developments.

November 6. The Board of Governors lowers the discount rate to 4.5 percent. An easing action is implemented in concert with the discount rate cut.

Early December. An easing action is implemented.

December 17. The FOMC meets. The directive calls for an unchanged policy with bias toward ease depending on intermeeting developments.

December 20. The Board of Governors lowers the discount rate by a full percentage point to 3.5 percent. The FOMC allows partial show-through to the federal funds rate.

Figure 1
Weekly Federal Funds Rate

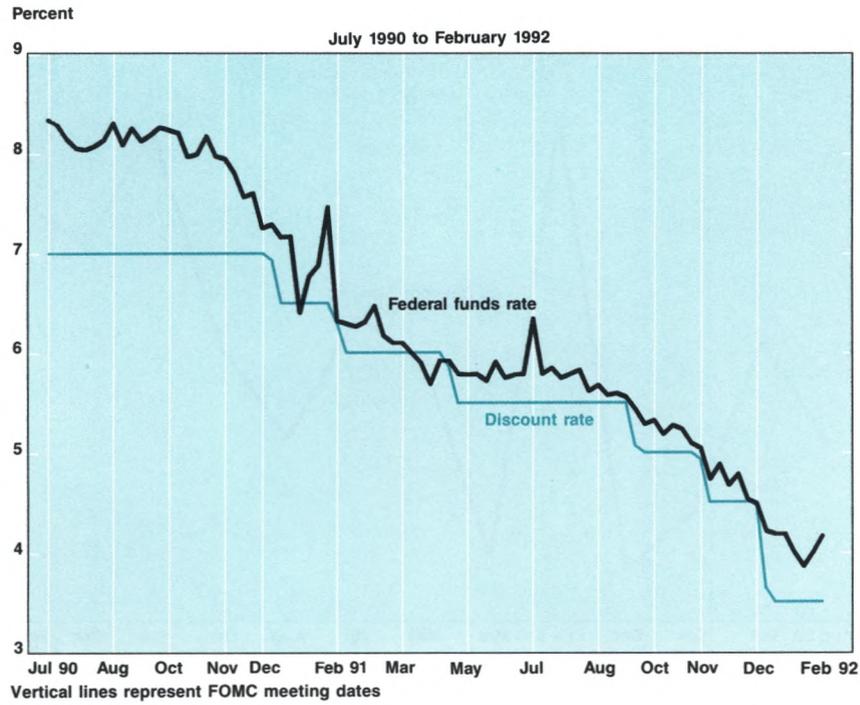


Figure 2
13 Week Growth Rates of M2



Figure 3
Intermeeting Growth of Total Reserves¹

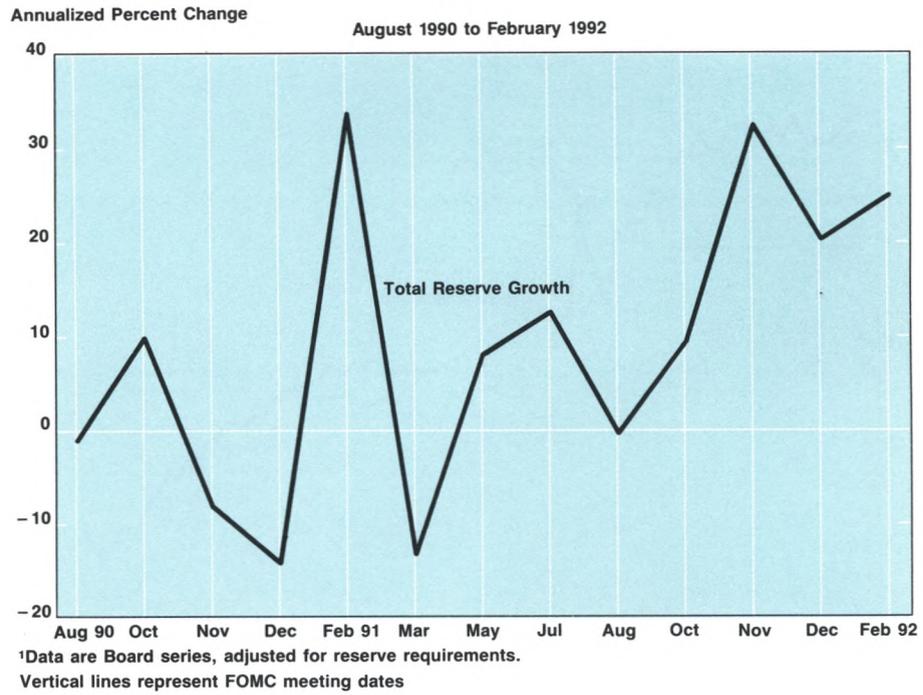


Figure 4
Private Forecasters' View of Real Output¹

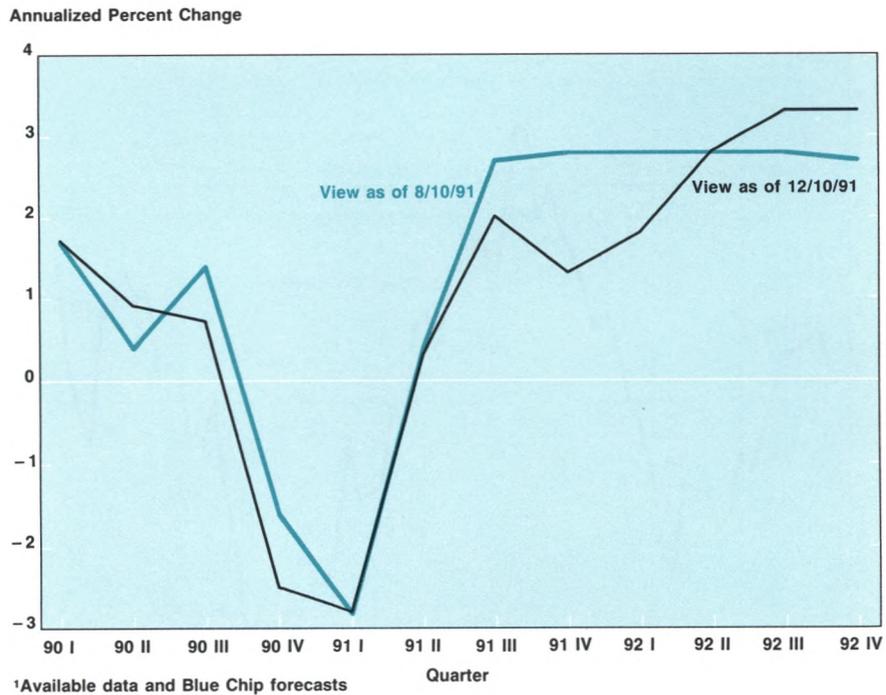


Figure 5
Total Nonfarm Payroll Employment

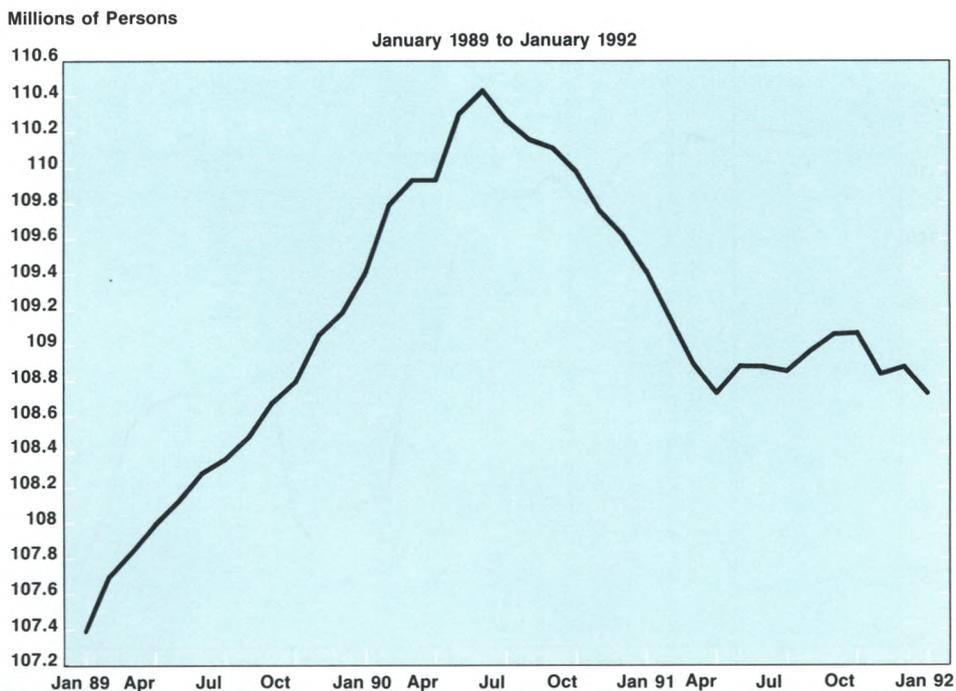


Figure 6
Industrial Production

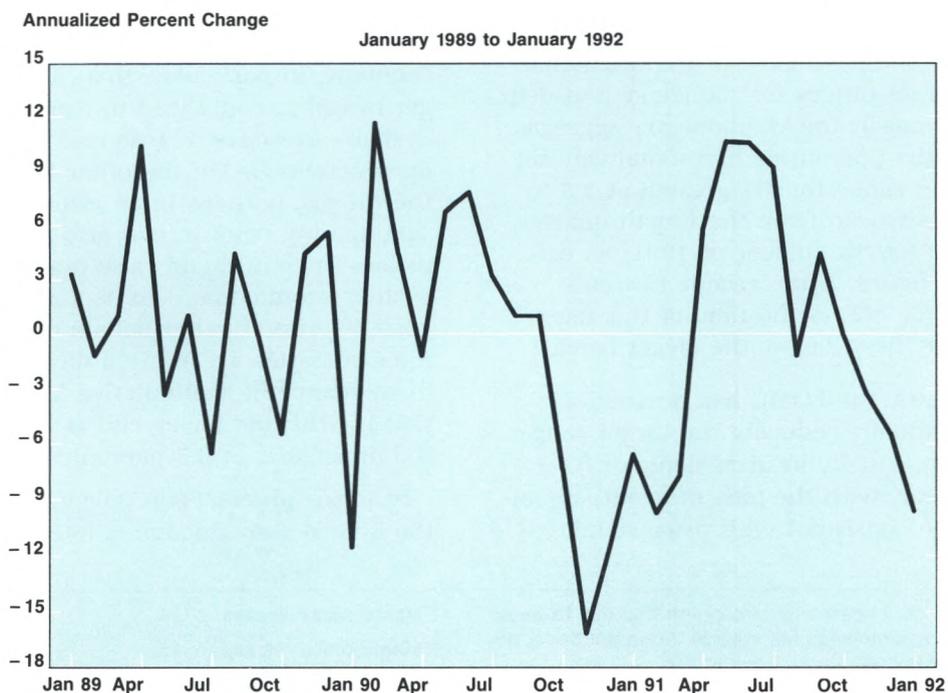
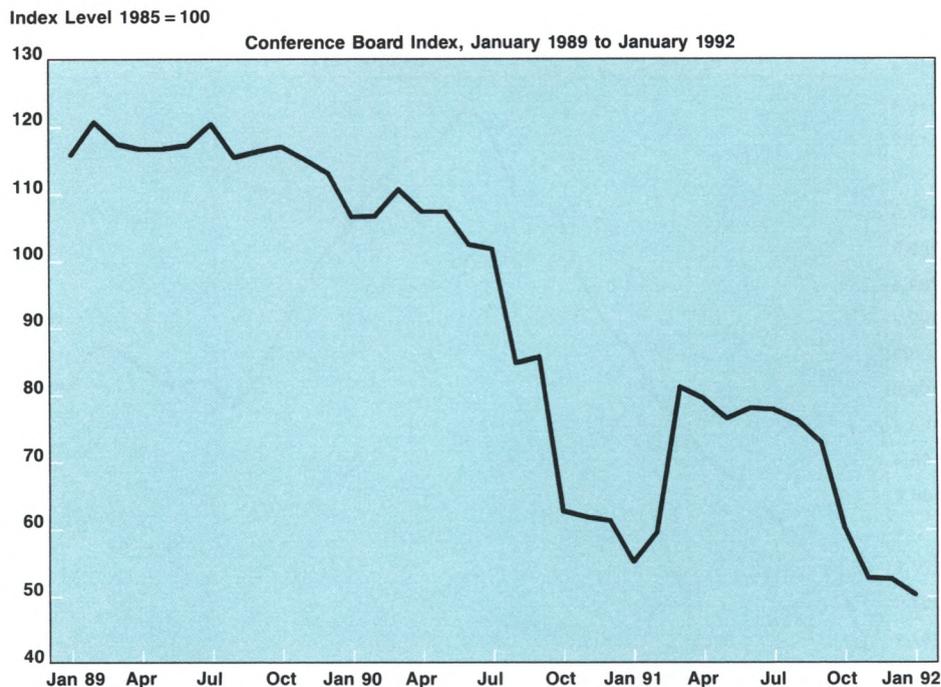


Figure 7
Consumer Confidence



Meeting of February 5-6, 1991

In keeping with standard practice and Congressional requirements, the FOMC took up a review of long-range policy at the February meeting. As in the past, most of the discussion focused on target ranges for monetary and debt aggregates, primarily the M2 monetary aggregate. In July 1990, the Committee had tentatively set the 1991 target range for M2 growth at 2.5 to 6.5 percent, measured from the fourth quarter of 1990 to the fourth quarter of 1991. As can be seen from figure 2, the recent 13-week growth rates for M2, at the time of this meeting, had mostly been below the target band.¹¹

In recent years, the FOMC has pursued a strategy of gradually reducing the target ranges for M2 growth, usually in increments of 0.5 percent per year, with the idea of eventually attaining a range consistent with price stability.¹²

At this meeting, however, “most of the members indicated a preference for affirming the ranges that had been established on a tentative basis in July.”¹³ The essential reason for the interruption in the usual sequence was the weak economy, in particular, that “lowering [the target range]. . . could lead to concerns about the System’s objective of fostering an upturn in business activity.”¹⁴ On the other hand, increasing the ranges, perhaps in an effort to show recession-fighting resolve, was also viewed with suspicion, since it “could raise questions about the System’s commitment to its anti-inflationary goals.”¹⁵ After further debate on these points, the Committee agreed to a directive calling for maintenance of the tentative M2 target ranges, that is, with the lower end at 2.5 percent and the upper end at 6.5 percent.¹⁶

In terms of short-run policy, that is, policy for the immediately upcoming intermeeting period,

¹¹Of course, it is not necessarily of concern that the 13-week M2 growth rates sometimes fall outside the target band; it is the growth rate over the entire year that is of importance.

¹²March press release, p. 14.

¹³March press release, p. 14.

¹⁴March press release, p. 15.

¹⁵March press release, p. 15.

¹⁶March press release, p. 17.

the developments since the previous FOMC meeting were an important consideration. The December 1990 directive had called for some initial easing along with additional easing should conditions warrant. The Board of Governors, which exercises authority over discount rate changes separately from the FOMC, voted to lower the discount rate to 6.5 percent immediately following the December meeting, and, according to the Record, some of this decline was allowed to show through to the federal funds rate.¹⁷ Further easing followed in January, and, when the Board of Governors approved a further discount rate cut on February 1 to 6 percent, the entire amount of the cut was allowed to show through to the federal funds rate.¹⁸ As figure 1 shows, the federal funds rate, although relatively volatile, had dropped approximately 100 basis points during the intermeeting period. By this measure, dramatic ease had taken place during the intermeeting period.

The intermeeting growth rate of total reserves, graphed in figure 3, also seemed to indicate substantial ease in the period since the December meeting. The annualized growth rate for this period was in excess of 30 percent. M2 growth had begun to pick up somewhat by February, with the 13-week growth rate moving slightly higher than 2.5 percent at the time of the meeting. According to the Record, "the continuing weakness in M2. . . appeared to reflect in part heightened concerns about the financial condition of many depository institutions in the wake of the closing of privately insured banks and credit unions in Rhode Island and the failure of the Bank of New England."¹⁹

At the time of this meeting, it appeared that real output had declined in the fourth quarter of 1990 and was on a path of further decline in the current quarter. In particular, total nonfarm payroll employment fell in January, on the heels of a December decline. Industrial production declined sharply in the fourth quarter of 1990, as had capacity utilization. Consumer spending, "partly reflecting [a] lackluster. . . holiday sea-

son," was weak in the fourth quarter.²⁰ These factors were somewhat offset by a relatively strong nonagricultural export performance.²¹

The Board staff's forecast for real output prepared for the February meeting suggested that "some further decline in economic activity" was likely in the near term.²² The staff forecast assumed that the war in the Persian Gulf, which was just getting under way, would be short-lived, perhaps lasting a few months, and that further disruption of oil supplies would be avoided for the foreseeable future. The economy was expected to begin growing again "subsequently," aided by export growth, falling oil prices and interest rates, and improved consumer confidence.²³

Committee members saw the economic situation at the time of the February meeting as marked by "heightened. . . uncertainties," due in part to the outbreak of war in the Persian Gulf.²⁴ In general, members saw a "relatively mild recession followed by a moderate upturn in economic activity. . . as a reasonable expectation."²⁵ "Risks," however, "were clearly on the downside," and even a "relatively long recession could not be ruled out."²⁶ In assessing the outlook, members were particularly concerned about business and consumer confidence. Indices of sentiment were already at low levels and were poised, in the eyes of the Committee, to go lower, owing not only to the unfolding conflict in the Middle East, but also to "financial excesses of the past decade."²⁷ Nonetheless, not all of the news was gloomy, as the Committee noted that a lower spectrum of interest rates, lower oil prices and a depreciating dollar would probably contribute to a rebound in aggregate activity.²⁸ On the inflation front, "several members stressed that the slowing in monetary growth over a period of years was likely to be reflected increasingly in lower inflation."²⁹

According to the Record, "the considerable easing of monetary policy. . . [in] recent months" encouraged members to endorse unanimously

¹⁷March press release, p. 4.

¹⁸March press release, p. 4.

¹⁹March press release, p. 6.

²⁰March press release, p. 2.

²¹March press release, p. 3.

²²March press release, p. 6.

²³March press release, p. 7.

²⁴March press release, p. 7.

²⁵March press release, p. 7.

²⁶March press release, p. 8.

²⁷March press release, p. 9.

²⁸March press release, p. 10.

²⁹March press release, p. 13.

an unchanged policy for the intermeeting period ahead.³⁰ In particular, “sufficient time had not yet elapsed for the effects of the lower [interest] rates to be felt in the economy or indeed to any measurable extent in the growth of the monetary aggregates.”³¹ While many members mentioned sluggish M2 growth as an area of concern, most seemed to agree with a staff analysis that suggested faster rates of growth by the end of March, given a steady policy course. Some members, however, reiterated a call for a “relatively high priority [on] achieving satisfactory rates of growth in reserves and money.”³²

The degree of bias in the directive, if any, was a slightly more contentious issue. One view held out for a tilt toward ease in the weeks ahead, owing primarily to “the downside risks to the economy and the potential for inadequate monetary growth.”³³ Some members were especially concerned that there would be “a high premium on avoiding any tendency for the weakness in the economy to cumulate because [of] . . . the severe consequences of a potentially deep and prolonged recession.”³⁴ An alternative view held by some members was that, while easing might be necessary in the future, there were “considerable risks of overreacting” and that “conditions for a recovery in economic activity already appeared to be in place.”³⁵ The former view, however, carried the day, and the directive contained bias toward ease, giving “special weight to potential developments that might require some easing during the intermeeting period.”³⁶

Meeting of March 26, 1991

During the intermeeting period, the bias toward ease in the directive was acted upon. According to the Record, “in early March, in response to information suggesting that economic activity had continued to decline through February, pressures on reserve positions were eased slightly.”³⁷ The indications that economic activity was weakening further included a sharp decline in total nonfarm payroll employment

and a fall in industrial output.³⁸ Accordingly, the federal funds rate, depicted in figure 1, fell to a level just over 6 percent by the time of the March meeting. Money growth, as measured by 13-week M2 growth rates, continued to pick up during this period and seemed to indicate ease relative to previous rates, as outlined in figure 2. According to the Record, members cited “the strengthening in M2 growth in February and March [as] a welcome development following an extended period of limited expansion.”³⁹ Total reserves, shown in figure 3, were more puzzling during this period, as they actually declined, indicating a net drainage of reserves from the system instead of an injection. The reserves measure, therefore, seemed to indicate a relatively tight intermeeting policy.

The Board staff expected a resumption of real output growth within a few months of the March meeting.⁴⁰ Positive factors cited included the end of the war in the Persian Gulf (which presumably would brighten consumer and business attitudes), lower nominal interest rates and oil prices, and expected improvement in exports.⁴¹ The staff felt that “reduced availability of credit” and “a moderately restrictive fiscal policy” were factors restraining near-term growth.⁴²

The Committee’s assessment of the outlook was essentially in agreement with that of the Board staff. Members were especially encouraged by the improvement in consumer confidence at the end of the war and felt that “an upturn in economic activity was widely expected.”⁴³ Many members emphasized, however, that little hard evidence of growth in real output had accumulated thus far and that, in fact, “there was some risk that the recession could deepen considerably further.”⁴⁴ Many members did not share the staff’s optimism about a significant contribution to the recovery coming from export growth, as such effects were likely to be “curtailed by slower growth abroad.”⁴⁵ Ac-

³⁰March press release, p. 18.

³¹March press release, p. 18.

³²March press release, p. 19.

³³March press release, p. 20.

³⁴March press release, p. 20.

³⁵March press release, p. 20.

³⁶March press release, p. 21.

³⁷May press release, p. 4.

³⁸May press release, pp. 1-2.

³⁹May press release, p. 12.

⁴⁰May press release, p. 6.

⁴¹May press release, p. 6.

⁴²May press release, pp. 6-7.

⁴³May press release, p. 7.

⁴⁴May press release, p. 7.

⁴⁵May press release, p. 10.

ording to the Record, real output growth had slowed in Germany and Japan, and “some weakening in activity apparently had occurred in several other major industrial countries.”⁴⁶

Most members supported the notion, with regard to short-run policy action, that sufficient easing had already taken place to foster a recovery.⁴⁷ In fact, some members commented that “the most likely direction of the next policy move was not clear at this point and. . . caution was needed before any action was taken.”⁴⁸ In particular, further easing was a “possibility” due to “prevailing uncertainties,” but, “if the economy was indeed near its recession trough, additional easing would not be necessary.”⁴⁹ Firming was viewed as “premature,” although there might be a “potential need to tighten reserve conditions promptly if emerging economic and financial conditions. . . threatened progress toward price stability.”⁵⁰ Given these considerations, all of the members agreed to support a directive calling for an unchanged policy in the weeks ahead.⁵¹

While the members “expressed a range of views” relating to the possible degree of bias in the directive, the directive issued was symmetric.⁵² As noted in the Record, the symmetry represented a deviation from the policies adopted since July 1990, as virtually all of the directives since that time had been biased toward ease.⁵³ The policy shift was consistent with the “assessment that the risks to the economy. . . were now more evenly balanced.”⁵⁴ In one view, the recession had bottomed out, and therefore little could be achieved through further easing. In fact, “policy adjustments should be made only in the event of particularly conclusive evidence. . . that the recession might be deeper. . . than anticipated.”⁵⁵ An alternative view was that downside risks still predominated and that “the Committee should react relatively promptly” should real output appear to decline further.⁵⁶ One member suggested that recoveries tend to be stronger than expected, and therefore the

“[greatest] risks were in the direction of too much ease and of persisting or increasing inflation.”⁵⁷ In this view, the bias in the directive should be toward a tighter policy, especially considering the lags in monetary policy effects. Considering all of these views, however, the Committee elected to issue the symmetric directive.

The Committee also discussed the interaction between discount rate changes and open market operations as a technical matter of operating procedure.⁵⁸ The policy in recent years has been to keep the discount rate somewhat below the federal funds rate. Discount rate changes, which again are governed directly by the Board, “usually had been allowed to pass through automatically to the federal funds rate” in the recent past, although there were some exceptions.⁵⁹ Therefore, actions implemented by the Board alone might influence open market operations without explicit FOMC approval. Comments by members indicated the practice of show through should be continued, in general, “but that consultation among members of the Committee would be particularly appropriate in [some] circumstances.”⁶⁰ In particular, the members mentioned cases in which a partial show through was more appropriate or particularly large policy actions were being considered.⁶¹

Meeting of May 14, 1991

Immediately following the March FOMC meeting, a steady open market policy was maintained.⁶² As figure 1 shows, however, the federal funds rate began declining immediately after the March meeting; the Record notes, “the rate was under downward pressure at times from market expectations of some further easing.”⁶³ At the end of April, two weeks before the May meeting, an easing action was implemented when the Board voted to reduce the discount rate to 5.5 percent and a portion of the drop was allowed to show through to the federal funds rate. Federal funds traded at about

⁴⁶May press release, p. 3.

⁴⁷May press release, p. 11.

⁴⁸May press release, p. 12.

⁴⁹May press release, p. 12.

⁵⁰May press release, p. 12.

⁵¹May press release, p. 11.

⁵²May press release, p. 13.

⁵³May press release, p. 13.

⁵⁴May press release, p. 13.

⁵⁵May press release, p. 13.

⁵⁶May press release, p. 13.

⁵⁷May press release, p. 14.

⁵⁸May press release, p. 14.

⁵⁹May press release, p. 14.

⁶⁰May press release, p. 14.

⁶¹May press release, p. 14.

⁶²July press release, p. 4.

⁶³July press release, p. 4.

5.75 percent as the FOMC convened in May. Quarterly money growth rates had begun to slow at the time of this meeting, as shown in figure 2, but remained squarely within the target band. Reserve growth had resumed, eliminating some of the puzzle of the sharp decline recorded in the previous intermeeting period.

The easing action was taken in response to "indications of [continuing] weakness in the economy."⁶⁴ The Record describes incoming data as "mixed," perhaps broadly suggestive that real output growth might be flat or slightly positive after declining in the fourth quarter of 1990 and the first quarter of 1991.⁶⁵ While total nonfarm payroll employment fell again in April, the rate of decline was less than in previous months. Industrial output was flat in April. The available data on foreign economies suggested that they grew at a relatively slow pace in the first quarter.

Calling an upswing in economic activity "imminent," the Board staff at this meeting forecast a recovery fully under way in the summer months of 1991 and continuing through 1992.⁶⁶ The growth in real output was expected to be slower than that experienced during other postwar recoveries.⁶⁷ Restraint in the recovery was suggested, according to the staff, by "the absence of further significant impetus from net exports" and "moderately restrictive" fiscal policy, at all levels of government.⁶⁸ The staff's changing view on the contribution of net exports, relative to its forecast from the previous meeting, was consistent with the evidence that major foreign industrial economies continued to slow in the first months of 1991.

The Committee "generally viewed a business recovery in the months ahead as a reasonable expectation."⁶⁹ While most members felt that signals were "mixed," many felt that "a variety of developments appeared to have laid the groundwork for a recovery."⁷⁰ An important

factor would be the evolution of consumer and business sentiment.⁷¹ Many members seemed to concur with the staff forecast that the strength of the recovery was questionable, as "current conditions did not point to major sources of stimulus."⁷² Some members, however, did discuss inventory investment and housing construction in such a role. As for inflation, "the members continued to express confidence that the ongoing effects of earlier monetary policy actions and reduced monetary growth over an extended period. . . would tend with some lag to exert a favorable restraining effect on prices."⁷³

The Committee unanimously supported a directive with the thrust of policy unchanged from that of the previous meeting, and virtually all members supported instructions avoiding bias.⁷⁴ At this point, in members' eyes, "a steady monetary policy appeared to. . . [reflect] an appropriate balancing of the risks of an overly stimulative policy that would threaten progress against inflation versus the risks of a deepening recession or an overly delayed recovery."⁷⁵ While some members felt that the costs of a further fall in real output were much more severe than an unexpectedly strong burst of growth, most agreed that the easing actions that had already been taken, given the presumed lags in effects on real output, were enough to insure against a further downturn.⁷⁶ In particular, "the System's commitment to the goal of reducing inflation argued for a cautious approach to any further easing at a time when the economy might be close to its recession trough."⁷⁷

The growth rate of the Committee's primary monetary aggregate, M2, was a point of discussion at the May meeting. The Board staff prepared a report suggesting that M2 growth would improve in the summer following a flat performance in April. Members showed some

⁶⁴July press release, p. 4.

⁶⁵July press release, p. 1.

⁶⁶July press release, p. 6.

⁶⁷July press release, p. 6.

⁶⁸July press release, p. 6.

⁶⁹July press release, p. 7.

⁷⁰July press release, p. 7.

⁷¹July press release, p. 7.

⁷²July press release, p. 8.

⁷³July press release, p. 11.

⁷⁴July press release, p. 12.

⁷⁵July press release, p. 12.

⁷⁶July press release, p. 12.

⁷⁷July press release, p. 12.

concern that, in particular, “subnormal monetary growth might be an indication that monetary policy was still too tight.”⁷⁸ For this reason, according to the Record, “a number of members underscored the desirability of achieving monetary growth within the Committee’s ranges for the year.”⁷⁹

Meeting of July 2-3, 1991

The midyear meeting of the FOMC included a review of long-term objectives as required by law. The target range for M2 was the focus of discussion. The growth of this monetary aggregate was slowing at the time of this meeting, to the point where the 13-week growth rate had dropped to just over 2 percent, as illustrated in figure 2. For the year, however, M2 growth was in the middle of the target range, thanks to faster growth rates earlier.⁸⁰ Nevertheless, members felt that the “growth of this aggregate thus far in 1991 had fallen short of what might have been expected on the basis of historical relationships with nominal income and interest rates.”⁸¹ Furthermore, “the reasons for the shortfalls were not fully understood.”⁸² The view of the Committee seemed to be that there was simply a good deal of uncertainty surrounding the behavior of M2, but that “the four-percentage point range provided adequate leeway for any adjustments that might be needed.”⁸³ As in February, the Committee decided to leave the target range unchanged.

With regard to short-run policy, operations had focused on maintaining the existing policy stance since the last meeting. The federal funds rate seemed to bear this out, as the weekly average rate shown in figure 1 remained steady for the most part at about 5.75 percent, except for a 50 basis-point spike on the week of the July meeting. According to the Record, there was some upward pressure on interest rates in the intermeeting period due in part to “expectations that no further easing of monetary policy was likely in the near term.”⁸⁴ While figure 2 shows that M2 growth continued to slow, meas-

ured on a 13-week basis, intermeeting reserve growth as captured in figure 3 appeared satisfactory.

The Board staff forecast “considerable growth” through the end of 1991.⁸⁵ Again at this meeting, the staff felt that this phase of the recovery would be slow relative to past experience. The restraint was attributed, in part, to weakness in nonresidential construction, which would be “depressed by high vacancy rates,” and “fairly restrictive” fiscal policy, again at all levels of government.⁸⁶

Members of the Committee “generally agreed that a recovery very likely was under way.” While “puzzling aspects” were noted, it was also pointed out that “sources of strength in an economic expansion often have been difficult to anticipate near a cycle trough.”⁸⁷ The Committee’s policy of moderate money growth over the last several years was expected to pay off in the form of lower inflation in the upcoming quarters.⁸⁸ Many members agreed with the staff regarding the restrictive effects of fiscal policies at all levels of government relative to past recovery phases. In particular, “despite burgeoning [federal] borrowing requirements in the near term, cutbacks in defense spending and other efforts to curb expenditures” had the earmarks of a restrictive fiscal approach.⁸⁹

The Committee unanimously supported a directive that called for an unchanged policy in the weeks until the next meeting. According to the Record, “an unchanged policy course [was viewed as offering] the greatest promise of reconciling the Committee’s goals of sustaining the nascent business recovery while also fostering further progress against inflation.”⁹⁰ Imminent policy change was viewed as “unlikely,” despite “obvious. . . uncertainty.”⁹¹ Recent sluggishness in M2 growth, which can be seen in figure 2 as the declining 13-week growth rates in May and June, was a concern of some members, who commented that perhaps “monetary policy had not been eased sufficiently in recent

⁷⁸July press release, p. 13.

⁷⁹July press release, p. 13.

⁸⁰August press release, p. 13.

⁸¹August press release, p. 13.

⁸²August press release, p. 13.

⁸³August press release, p. 14.

⁸⁴August press release, p. 4.

⁸⁵August press release, p. 5.

⁸⁶August press release, p. 6.

⁸⁷August press release, p. 6.

⁸⁸August press release, p. 7.

⁸⁹August press release, p. 12.

⁹⁰August press release, p. 18.

⁹¹August press release, p. 18.

months."⁹² It was pointed out, however, that other measures, "especially. . . reserves," seemed to show growth that was relatively strong. Most members felt that "the behavior of M2 . . . did not call for any policy adjustments at this point."⁹³ In any event, the staff projected faster M2 growth in the near future, under a presumption of an unchanged policy stance.

Meeting of August 20, 1991

As the Committee convened in August, the "recovery was proving to be sluggish."⁹⁴ While operations during the intermeeting period initially had been directed toward maintaining existing policy, an easing move was implemented in early August.⁹⁵ One reason for the unscheduled action was weakness in M2 growth; as can be seen in figure 2, the 13-week growth rates were approaching zero at the time of the easing action and had turned negative by the time of the meeting. By any of the measures of the policy stance considered here, however, an easier policy was not obvious. Federal funds, which had been trading at about 5.75 percent, moved only slightly lower by the time of the meeting according to the weekly averages graphed in figure 1. M2 growth continued to falter as the Committee convened. Intermeeting total reserve growth was flat, perhaps suggesting a relatively tight policy.

The Record again describes the information on the economy at this juncture as "mixed," but generally suggestive that sluggish growth in real output would continue in the near term.⁹⁶ Industrial production increased in July, in part because of a rise in automobile production. July total nonfarm payroll employment increased slightly, as did retail sales, but business fixed investment declined in the second quarter and was expected to remain weak.⁹⁷ Interest rates generally fell in the intermeeting period; one reason cited, in the case of short-term Treasury securities, was the attempted coup in the Soviet Union.⁹⁸

The Board staff forecast a "moderate expansion over the next several quarters."⁹⁹ The

growth rate of real output for the second half of the year, however, was now forecast to be somewhat lower than previously suggested. The staff outlook emphasized "a cyclical swing from substantial liquidation to modest accumulation in business inventories" as a stimulus for recovery. As in previous forecasts, restrictive fiscal policy was thought to be retarding real output growth rates from their more usual cyclical pattern.

FOMC members saw an economy that was "uneven," although they appeared to agree with the staff in principle that real output growth would be positive over the next several quarters. In particular, a "sustained expansion . . . was still viewed as a reasonable expectation, [but] many members now believed that the risks were tilted toward the downside."¹⁰⁰ The coup attempt in the Soviet Union, the outcome of which was unknown at the time of the meeting, added in the view of the Committee additional uncertainty to the outlook. Closer to home, weakness in M2 growth was cited as "a matter of increasing concern to the extent that it implied. . . a faltering economic expansion."¹⁰¹ Again at this meeting, according to the Record, the FOMC seemed to concur with the staff assessment that fiscal policy effects would probably be "somewhat negative" for the immediate future.¹⁰²

The shift toward pessimism in the Committee's outlook is reflected in private sector forecasts from August 1991 and December 1991 for quarterly growth in real output, as illustrated in figure 4. As of August, projections for the fourth quarter of 1991 and the first quarter of 1992 were relatively robust, although perhaps somewhat low relative to previous recoveries. By December, however, the projected growth rates for these quarters had dropped substantially, far below that which might have been expected based on historical experience.

The Committee voted to issue a directive maintaining current policy for the immediate future but with an asymmetry toward ease. According to the Record, "an immediate easing

⁹²August press release, p. 19.

⁹³August press release, p. 19.

⁹⁴October press release, p. 4.

⁹⁵October press release, p. 4.

⁹⁶October press release, p. 1.

⁹⁷October press release, p. 2.

⁹⁸October press release, p. 4.

⁹⁹October press release, p. 5.

¹⁰⁰October press release, p. 6.

¹⁰¹October press release, p. 7.

¹⁰²October press release, p. 11.

move would be premature because the most recent economic information, although mixed, still suggested a moderate rate of economic expansion."¹⁰³ Advocates of asymmetry argued that "risks. . . were largely on the side of a weaker-than-projected economy" and that the Committee should "react promptly" if any cumulative decline should become apparent.¹⁰⁴ Some members disagreed, however, because they "were concerned about responding to what might prove to be short-lived fluctuations in the economic data and anecdotal information."¹⁰⁵ Even these members, however, could accept some asymmetry toward ease in the directive.¹⁰⁶

The Record indicates that members paid "considerable attention" in their discussion to sagging M2 growth rates.¹⁰⁷ While members found explanations "difficult to disentangle," some saw the slow growth to be of "little import" if it merely reflected shifts into alternative investment instruments that are not counted in the broad monetary aggregates.¹⁰⁸ On the other hand, the "behavior. . . might be indicative of. . . a monetary policy stance that was too tight." The Board staff analysis continued to forecast some pick-up in the growth of M2 in the near term.¹⁰⁹

Some members suggested that, in current circumstances, the Board should emphasize movements in M2 more explicitly when "guiding possible intermeeting adjustments in policy." The majority, however, did not support this idea, for at least three reasons. One was that broad monetary aggregates like M2 were viewed by some as "unreliable indicators" of real output growth paths. Another was that narrower measures, such as M1 and total reserves, "might be more indicative of the underlying thrust of monetary policy." Finally, some members felt that including stronger reference to monetary aggregates in the directive might "misconstrue the views of many members," who might not be willing to support a policy response to "aberrant fluctuations" in money growth.¹¹⁰

Meeting of October 1, 1991

Again, the bias in the August directive was acted upon during the intermeeting period. The Board voted to lower the discount rate to 5 percent in mid-September and part of the 50 basis-point decline was allowed to show through to the federal funds rate. Accordingly, federal funds traded at about 5.25 percent by the time the Committee met in October, as shown in figure 1. Monetary growth, as measured by the 13-week M2 growth rate displayed in figure 2, was actually negative at the time of the meeting, but apparently the fall in this growth rate had stalled somewhat relative to the deceleration apparent in the graph since the spring of the year. Figure 3 indicates that intermeeting growth in total reserves had resumed, almost reaching the rates observed at the May and July meetings; by this measure, policy appeared to have been eased somewhat since August.

According to the Record, the information on the economy reviewed at the October meeting suggested a continuing recovery, but one that was "uneven across sectors."¹¹¹ Total nonfarm payroll employment had been essentially flat since March. Industrial production had increased in August. Consumer spending was rising, but retail sales fell in August. Overseas, the growth rates of the Japanese and German economies fell in the second quarter, although real output growth appeared to have strengthened in other large economies.¹¹²

The Board staff projected continued recovery, tempered by downside risks and somewhat slow relative to previous cyclical upturns because of "persisting weaknesses in some sectors of the economy."¹¹³ In this forecast, consumer spending would be a significant positive factor, with "a swing from inventory liquidation" providing an "additional boost."¹¹⁴ Other sources of stimulus included business equipment spending and housing construction.¹¹⁵ Dampening factors were still seen on the fiscal policy side and also in commercial construction, where high vacancy rates were viewed as a deterrent to building.¹¹⁶

¹⁰³October press release, p. 12.

¹⁰⁴October press release, p. 12.

¹⁰⁵October press release, p. 12.

¹⁰⁶October press release, p. 13.

¹⁰⁷October press release, p. 13.

¹⁰⁸October press release, p. 13.

¹⁰⁹October press release, p. 14.

¹¹⁰October press release, pp. 14-15.

¹¹¹November press release, p. 1.

¹¹²November press release, pp. 1-3.

¹¹³November press release, p. 5.

¹¹⁴November press release, p. 6.

¹¹⁵November press release, p. 6.

¹¹⁶November press release, p. 6.

Committee members seemed to agree with the staff prognosis, viewing the fledgling recovery as somewhat threatened.¹¹⁷ According to the Record, “members commented that the anecdotal reports on economic conditions and on business and consumer sentiment continued to have a generally negative tone that did not appear to be fully consistent with the available economic statistics.”¹¹⁸ Reports on business attitudes in particular seemed to suggest that key participants in the economy thought momentum in economic activity was stalled.¹¹⁹ Members were concerned about risks to the recovery arising from “financial strains in the economy” as well as slow money growth. On the whole, however, the Committee appeared to feel that “the prospects remained favorable for a sustained expansion [in economic activity] at a moderate pace over the next several quarters.”¹²⁰

In the discussion about operating instructions for the upcoming few weeks, all of the members of the FOMC supported language leaving the policy stance initially unchanged. According to the Record, “the present policy stance provided an appropriate balance between the risks of a faltering economic expansion and the risks of little or no progress toward price stability.”¹²¹ Some previous easing had not yet filtered through to effects on real output growth.¹²² Several members asserted, however, that the Committee should remain “particularly alert to indications of renewed weakening in business activity,” in part because they felt a second downturn might be less responsive to monetary stimulus.¹²³ Other members emphasized the adverse consequences of easing too much, focusing on the prospect of higher long-term interest rates due to increased inflationary expectations which might then retard growth.¹²⁴ On balance, however, a steady course proved to be the consensus.

The slow growth of M2 continued to be a concern. While some members emphasized special factors that might be depressing otherwise

robust growth, such as the resolution of the crisis in the thrift industry, others felt that the broad monetary aggregates “needed to be monitored with special care.”¹²⁵ As at previous meetings, the Board staff continued to predict some pick-up in the growth of M2, even in the absence of further easing action.

As for contingencies in the directive, most of the members “indicated a preference for a directive that was biased at least marginally toward easing.”¹²⁶ The downside risks cited earlier provided the primary justification in the majority view. A minority preferred a symmetric directive, citing likely cumulative effects from previous easing actions as a sufficient safeguard against further declines in real output.¹²⁷ Nevertheless, these members indicated a willingness to accept an asymmetric directive.¹²⁸ In the discussion, some members in the majority emphasized that “there should be no strong presumption that any easing would be undertaken during the intermeeting period ahead.”¹²⁹

Meeting of November 5, 1991

Because the recovery appeared to be weakening during the intermeeting period, an easing action, consistent with the bias toward ease contained in the October directive, was implemented at the end of October.¹³⁰ According to the Record, a key concern in taking this action was evidence on “flagging consumer and business confidence.”¹³¹ The federal funds rate fell after the easing action to just above 5 percent by the time of the November meeting. The 13-week growth rates of M2 accelerated substantially, even before the easing action, and turned positive during the intermeeting period. Growth for the year remained near the lower end of the Committee’s range. Intermeeting total reserve growth was substantial, hitting the second highest level of the year, as outlined in figure 3. All measures of the policy stance therefore seemed to indicate at least some ease.

The Board staff, concerned about “recent reports on business and consumer confidence

¹¹⁷November press release, p. 6.

¹¹⁸November press release, p. 7.

¹¹⁹November press release, p. 7.

¹²⁰November press release, p. 6.

¹²¹November press release, p. 11.

¹²²November press release, p. 11.

¹²³November press release, p. 11.

¹²⁴November press release, p. 11.

¹²⁵November press release, p. 12.

¹²⁶November press release, p. 12.

¹²⁷November press release, p. 12.

¹²⁸November press release, p. 12.

¹²⁹November press release, p. 12.

¹³⁰December press release, p. 4.

¹³¹December press release, p. 4.

combined with other information,” continued to forecast an expanding economy in the quarters ahead but made an “appreciable markdown” in the expected rates of growth in real output relative to past forecasts.¹³² The staff saw the downside risks to the forecast as “predominant.”¹³³ In particular, real output was expected to grow quite slowly over the winter months, with the more robust growth normally associated with cyclical upswings a possibility in the spring of 1992 or later.¹³⁴ Except for the decline in the measures of sentiment contributing to less consumption than previously predicted, the staff foresaw the same sources of strength and the same retarding factors that were given appreciable weight in previous forecasts.

FOMC members were concerned about the recent developments in the measures of confidence, but “generally concluded that the available economic data appeared consistent with continuing, albeit sluggish, expansion in overall economic activity.”¹³⁵ Some commented that the measures of business and consumer sentiment “had to be viewed with caution because they had tended in the past to be coincident rather than leading indicators of economic activity.”¹³⁶ In terms of downside risk, several members indicated concern for “the vulnerability of the expansion stemming from the troubled condition of many financial institutions,” while others felt risks were symmetric or even on the upside.¹³⁷ Some members noted that any potential downturn was expected to be confined to the fourth quarter of 1991 or the first quarter of 1992 and that “a resumption of growth next year. . . [was] a reasonable expectation.”¹³⁸ Given the lags associated with short-run policy actions, these members believed that stimulus already in the economy should be given a chance to take effect, and any actions taken to stimulate real activity within the quarter might be viewed as somewhat late.¹³⁹

At the end of the meeting, a majority of the voting members supported a proposal to ease immediately and to bias the directive toward further ease should conditions warrant. While recognition that “monetary policy had been eased considerably over the course of recent months” was forthcoming from most members, many felt that “further modest easing . . . [might] provide some added insurance” against a decline in real output.¹⁴⁰ The majority felt that additional easing would help bolster consumer confidence and lead to further declines in key long-term rates.¹⁴¹ The Record indicates that there was “considerable” discussion of a proposal to make “a somewhat stronger move,” mainly because “small moves would lack the visibility. . . needed.”¹⁴²

A minority of members argued against substantial easing.¹⁴³ The notion that confidence could be appreciably affected by monetary policy actions was questioned.¹⁴⁴ Long-term interest rates, it was argued, might well increase on a substantial easing move, as fears of rekindled inflation took hold among investors. Several members also reiterated that several easing steps recently taken should be allowed to work through the economy before further action was taken.¹⁴⁵

Meeting of December 17, 1991

On November 6, the Board of Governors approved a 0.5 percentage-point reduction in the discount rate, and a “slight easing” was carried out in concert with this move.¹⁴⁶ The bias in the November directive was acted upon in the intermeeting period, as “an additional slight easing” was implemented in early December.¹⁴⁷ The second move was made, according to the Record, “as economic indicators continued to point to a faltering recovery and growth of the broad monetary aggregates remained sluggish.”¹⁴⁸ The

¹³²December press release, p. 6.

¹³³December press release, p. 6.

¹³⁴December press release, p. 6.

¹³⁵December press release, p. 7.

¹³⁶December press release, p. 8.

¹³⁷December press release, p. 7.

¹³⁸December press release, p. 7.

¹³⁹December press release, p. 7.

¹⁴⁰December press release, p. 11.

¹⁴¹December press release, p. 11.

¹⁴²December press release, p. 11.

¹⁴³December press release, p. 12.

¹⁴⁴December press release, p. 12.

¹⁴⁵December press release, p. 12. The timing of the easing action was also discussed “at some length,” as the Treasury auction beginning the day of the FOMC meeting would normally not be an appropriate time to intervene in the market for reserves. In particular, an immediate action could hurt the participants in the auction. Nevertheless, the Committee did not wish to delay action, and the directive contained no delay.

¹⁴⁶February press release, p. 4.

¹⁴⁷February press release, p. 4.

¹⁴⁸February press release, p. 4.

federal funds rate fell 0.5 percentage points between the November and the December meetings, indicating substantial ease. The 13-week M2 growth rates continued to accelerate during the intermeeting period, as illustrated in figure 2, also indicating a relatively easy policy. Similar interpretations are possible for intermeeting total reserve growth, which, while down somewhat from the previous meeting, was still robust.

Growth in real output appeared at this meeting to be slow and perhaps waning.¹⁴⁹ Depressed levels of business and consumer confidence, a fall in November industrial production and weakness in consumption expenditures led the Board staff to suggest, according to the Record, that “a pause in the recovery. . . might extend into early 1992.”¹⁵⁰ Faster growth was expected to return at that time in part because of “the cumulative effects of declines in interest rates in recent months.”¹⁵¹ The staff felt that key sources of growth would be provided by “increases in residential construction, somewhat larger consumption expenditures and some pick-up in business equipment spending.”¹⁵² Restrictive fiscal policy was still viewed as a key element retarding growth relative to what expectations might warrant based on historical relationships in past recoveries.¹⁵³

The members seemed to agree with the staff that past policy actions would eventually lead to increased growth and that “the economy might well remain quite sluggish over the months immediately ahead.”¹⁵⁴ Focus was placed on the “evident pause in the business recovery and its interaction with very gloomy business and consumer sentiment.”¹⁵⁵ Factors that had been previously identified as dampening growth “had in fact proved to be stronger and more persistent than anticipated.”¹⁵⁶ The measures of sentiment combined with some anecdotal reports on business confidence received “considerable emphasis” in the Committee’s deliberations, although the reasons behind the dismal attitudes were “difficult to ascertain.”¹⁵⁷ Growth in the mone-

tary aggregates was viewed as a positive sign by some members.¹⁵⁸

In the discussion of short-term policy for the period immediately ahead, the Committee supported a directive that left unchanged the policy stance for the time being, but which contained an “especially strong presumption” that an easing action would be necessary, “unless improvement in the economy became evident fairly promptly or there was significant evidence of a pick-up in M2 growth.”¹⁵⁹ Some members again argued for “a more substantial policy move at some point.”¹⁶⁰ They hoped that “a larger and more visible policy action. . . would have greater effectiveness in part because it would be more likely to bolster confidence.”¹⁶¹

Other members argued for more deliberate policymaking.¹⁶² According to the Record, they “expressed reservations about the urgency to ease in the near term” and suggested that “monetary policy could do little” to alter the factors that were restraining the economy at this point.¹⁶³ In this minority view, the fact that the extent of recent easing actions was substantial and the effects on real output were yet to be realized was given a good deal of weight.

Any easing action needed to be coordinated with the Board’s approach to the discount rate. On December 20, the Board voted to move the discount rate down by a full percentage point. The FOMC then considered, in a telephone conference, reactions to the move and decided to allow part of the cut to show through to the federal funds rate.¹⁶⁴ As shown in figure 1, the funds rate fell below 4 percent on a weekly average basis by the end of the year.

SUMMARY

In 1991, the FOMC operated in an environment in which growth in real output was resuming. This paper has therefore provided a case study of the making of monetary policy during the recovery phase of the business cycle.

¹⁴⁹February press release, p. 1.

¹⁵⁰February press release, p. 6.

¹⁵¹February press release, p. 6.

¹⁵²February press release, p. 6.

¹⁵³February press release, p. 6.

¹⁵⁴February press release, p. 7.

¹⁵⁵February press release, p. 7.

¹⁵⁶February press release, p. 7.

¹⁵⁷February press release, p. 7.

¹⁵⁸February press release, p. 8.

¹⁵⁹February press release, p. 11.

¹⁶⁰February press release, p. 12.

¹⁶¹February press release, p. 12.

¹⁶²February press release, p. 12.

¹⁶³February press release, p. 12.

¹⁶⁴February press release, pp. 16-17.

Relative to past cyclical upswings in economic activity, growth in 1991 was slow, and the recovery itself seemed at times elusive.

The Committee states its objectives on a regular basis, and members support policy actions primarily based on their assessment of the outlook for inflation and real output. Since growth in economic activity was sluggish in 1991 and since inflation was low by recent standards, the Committee's objective of sustaining real output growth played a predominant role. Repeatedly, members wrestled with arguments about the lagged effects of monetary policy actions, noting that if the economy had bottomed out, easing to mitigate real output declines would be unnecessary. Still, at times, incoming data seemed to suggest a renewed decline in economic activity, and the Committee took actions throughout the year in the hope of avoiding this possibility.

Measuring the thrust of monetary policy at a point in time was a continual topic of discussion at FOMC meetings in 1991. While the federal funds rate played a dominant role in this capacity, the Committee devoted a considerable amount of time to analyses of M2 growth, which seemed to falter at times during the year. In general, conflicting signals of the thrust of monetary policy played a significant role in Committee deliberations.

During the first half of 1991, the FOMC displayed considerable optimism that a recovery

would begin and gain momentum as the year progressed. Three of the first four directives of the year called for an unchanged policy without bias, although, as indicated in the chronology and table 1, some easing was implemented during this period. Beginning about August, however, the Committee's confidence in the recovery began to wane. The four directives issued in the second half of the year all contained bias toward ease, as Committee members expressed deep concern about declines in industrial production and consumer confidence. By the end of the year, the FOMC had approved a number of easing actions designed to provide insurance against further declines in real output.

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How The 1992 Legislation Will Affect European Financial Services

THE EUROPEAN ECONOMIC Community (EC) was created by the Treaty of Rome of 1957. Its intention was to create an integrated "Common Market" within which goods, services, labor and capital would move freely. In its early years, the implementation of the Treaty of Rome focused on eliminating tariff barriers on trade in goods between the member countries. Barriers affecting capital movements and trade in services were neglected, while those affecting labor mobility, such as lack of recognition of professional qualifications across member countries, were greatly reduced but not eliminated.

A major initiative to eliminate all remaining barriers to intra-EC trade began in 1985. This is referred to as the "single market program" or "1992," its target date for completion (in reality, the end of 1992).¹ The legislation underlying the single market program affects virtually every product area. This paper examines one key portion of the legislation: the regulatory changes

that pertain directly to banking and other financial services.²

In 1985, this sector accounted for 6.4 percent of total output and 2.9 percent of employment.³ Since the sector provides services for other sectors, the integration of EC financial markets will affect efficiency not only within the financial services sector, but also in sectors *using* financial markets.

1992: GRADUAL RATHER THAN SUDDEN CHANGE

The commitment to eliminate the remaining EC trade barriers was formalized in the Single European Act (SEA), which was signed in 1985 and came into force on July 1, 1987. (See the shaded insert on pages 64-65 for additional highlights on EC history and a description of institutions and legislative instruments.) The SEA defines both the goal—"an area without internal

¹For a recent overview of 1992, see Boucher (1991).

²Grilli (1989b) summarizes the numerous restrictions affecting international trade and investment transactions in the financial services sector, both in the EC and in other developed countries.

³See Emerson et al. (1988) for additional details on the economic dimensions of the financial services sector.

frontiers in which the free movement of goods, persons, services and capital is ensured”—and the target date—the end of 1992. It also incorporates reforms to speed up decision-making within the EC by establishing “qualified majority voting” to decide most issues of the reform process.⁴

In 1985, the EC Commission produced a White Paper entitled “Completing the Internal Market.” It listed numerous measures thought to be necessary for the completion of the program, many of which have not yet been adopted.⁵ Because of the large number of required measures, all barriers cannot be eliminated at once.⁶

The large number of proposals and the time necessary to consider a given proposal contribute to 1992 being a process rather than an event. Each directive must go through a complex process of discussion, first within the Commission and then in the Council of Ministers. Member state governments must be informed at each stage because they wish to consult with the domestic parties that will be affected. Parliaments of member states, as well as the European Parliament, also comment on each proposal. Finally, each agreement has to be ratified and reflected in the legislation of each member state.

A typical EC directive could take three years from first draft to Council ratification, with another two years or so for full implementation. Only measures close to adoption in early 1992 (or already adopted) will be implemented by the end of 1992; and measures not yet drafted will not be implemented before the mid-1990s.

A SINGLE MARKET IN FINANCIAL SERVICES: THE CORE REGULATORY CHANGES

Before the 1980s, no systematic attempts had been made to reduce trade barriers in financial services. Although services had been addressed when the EC was formed in 1957, the implementation of intra-EC free trade in services had been neglected. Moreover, trade in financial services had not been covered by multilateral negotiations under the General Agreement on Tariffs and Trade (GATT). (This may change in the current Uruguay Round of negotiations.)

More important, many countries maintained exchange controls for capital account transactions long beyond when they liberalized current account transactions.⁷ Without a free flow of financial capital to balance the flows of goods between countries, “free” trade is constrained by capital controls. That is, financial services, which include a range of banking, investment and insurance services, cannot be freely provided across borders if access to foreign exchange is restricted.

Thus, an important step before removing specific restrictions on cross-border trade in financial services is to remove all exchange controls. Such a step was provided for by the Council Directive of June 24, 1988—The Capital Liberalization Directive—which removes controls on all capital flows within the EC and, for

⁴Key (1989) notes that under qualified majority voting, the number of votes of each member is weighted roughly according to its population. To adopt legislation, 54 votes out of a total of 76 are required.

⁵According to Hill (1991), as of December 1991, 65 of the 282 measures outlined in the White Paper remained to be adopted. A goal of the EC Commission was to have all measures adopted by year-end 1991 to allow member nations to convert the directives into national legislation. Problems with the directives are also occurring at the national level. For example, Italy has converted only half of the relevant directives into national law.

⁶Capie and Wood (1990) stress that gradual deregulation of the financial system is unlikely to cause instability. The history of deregulation, they note, reveals that only rapid changes in regulation threaten the stability of the financial system.

⁷According to Bannock et al. (1972), exchange controls are government policies that attempt to control the purchases and sales of foreign currencies undertaken by the residents of a specific country. For example, the Exchange Control Act of 1947 restricted the purposes for which foreign currencies could be bought by British residents and limited the use and retention of foreign currencies and gold they acquired.

An Overview of the European Community

The European Community (EC) is a grouping of 12 member states.¹ These are the original six signatories of the Treaty of Rome in 1957—France, Italy, Belgium, Luxembourg, the Netherlands and West Germany—plus six countries that joined later—Denmark (1973), Ireland (1973), the United Kingdom (1973), Greece (1981), Portugal (1986) and Spain (1986). Further expansion of the EC to include Austria and Sweden, as well as other countries, is a strong possibility. Key dates and events in the history of the EC, including the recent Maastricht Summit Accords on monetary and political union, are provided in the accompanying table.

EC Institutions

There are four major EC institutions. The *Commission* is the civil service of the EC. It is divided into 23 functional areas (Directorates General). There are 17 commissioners who are responsible for managing these areas. The Commission proposes new laws and policies and is responsible for implementing decisions made by the Council.

The *Council* is the ultimate decision-making authority. It is a committee whose members represent their own national governments. The Council makes final policy decisions based on Commission proposals. Participants at Council meetings vary according to subject matter. For example, if the topic is finance, then the finance ministers of the 12 member nations attend. If the topic involves the external relations of the EC, then foreign ministers attend. Council meetings involving heads of state occur twice a year. The chairmanship of the Council rotates among member states in alphabetical order for six-month periods. In some areas, such as for most labor and taxation questions, unanimity is required; for most single market issues, however, “qualified majority voting” is used.

The *European Parliament* is a chamber of elected representatives from all member states. It offers opinions on most European

legislation but it has no formal legislative powers.

The *European Court of Justice* is a body of 13 judges, including at least one from each member country. The Court rules on applications and interpretation of EC laws. Judgments of the Court are binding on each member state.

Legislative Instruments

There are four main legislative instruments. To become effective, legislation generally must be “adopted” by the Council. In some circumstances, however, the Commission may make laws itself. Typically, this will involve legislation that is required to implement previous Council decisions.

One instrument is *regulations*, which are legally binding on all member states whether or not ratified by national parliaments. If a regulation conflicts with national law, the regulation dominates. A second instrument is *directives*, which are legally binding only as to their ultimate effect; it is up to member states to decide how to implement the rules in their own national legislation. Virtually all of the 1992 program is being implemented by directives. *Decisions* are the third instrument. Decisions, which are more narrowly focused than directives, are legally binding on all those to whom they are directed. All decisions with financial implications are enforceable in courts of member states. Finally, *recommendations* (or opinions) have no legal support but merely state a view about some desirable condition or policy change.

EC legislation normally is subjected to a lengthy process of consultation and discussion before it is adopted by the Council. The “right of initiative” lies with the Commission. Once the Commission has drafted a proposal, there are consultations with all affected parties both directly and via the relevant ministries of member states. The European Parliament also has the right to be consulted and is given the opportunity to propose amendments.

¹For more details on the EC, see Rosenberg (1991).

Major Post-War Steps Towards European Integration

- 1947 Customs Union formed between Belgium, Netherlands and Luxembourg - "Benelux".
- 1948 Organization for European Economic Cooperation (OEEC) formed to administer U.S. aid for rebuilding post-war Europe.
- 1951 France, West Germany, Italy and Benelux form European Coal and Steel Community (ECSC) providing for a "Common Market" in these products.
- 1957 Treaties of Rome establish the six-member (Belgium, France, Italy, Luxembourg, Netherlands and West Germany) European Economic Community (EC) and the European Atomic Energy Community (Euratom).
- 1960 European Free Trade Association (EFTA) formed to promote free trade between non-EC Western European countries - Austria, Britain, Denmark, Finland, Iceland, Norway, Portugal, Sweden and Switzerland.
- 1962 Common Agriculture Policy (CAP) started.
- 1963 Britain's application to join EC vetoed by President de Gaulle.
- 1965 France boycotts EC in protest at excessive speed of integration moves.
- 1968 Customs union completed.
- 1970 "Werner Report" calls for Economic and Monetary Union within Europe - including a single currency.
- 1972 European exchange rate "Snake" arrangement formed, but the United Kingdom leaves the Snake after six weeks.
- 1973 United Kingdom, Denmark and Ireland join the EC.
- 1979 European Monetary System (EMS) formed - establishing the Exchange Rate Mechanism (ERM) and the European Currency Unit (ECU). Britain joins EMS but not ERM.
- 1979 First direct elections to European Parliament.
- 1981 Greece joins EC.
- 1983 Common Fisheries Policy established.
- 1985 White Paper on completing the internal market published.
- 1986 Spain and Portugal join EC.
- 1987 Single European Act comes into force.
- 1989 Delors Report calls for Economic and Monetary Union - including a single currency. Undertakings for Collective Investment in Transferable Securities took effect.
- 1990 United Kingdom joins ERM and Capital Liberalization Directive and Second Non-life Insurance Directive took effect.
- 1991 Maastricht Summit Accords on monetary and political union. The third and final stage of Economic and Monetary Union will begin by January 1, 1999. A single European currency will begin by this date (possibly as early as January 1, 1997). An independent European Central Bank will be set up six months before the single currency.
- 1993 Second Coordinating Bank Directive, Own Funds Directive, Solvency Ratio Directive and Second Life Insurance Directive take effect. Council Directive on Investment Services in the Securities Field and the Capital Adequacy Directive likely take effect.

The enforcement of EC laws is the responsibility of the Commission. Where breaches of EC laws are suspected, the Commission may issue a formal letter of notice to the govern-

ments of member states. Where this procedure proves insufficient, the Commission may refer the issue to the European Court of Justice.

the most part, on capital flows between an EC member and a non-member. For most member states, this directive was to apply from July 1, 1990.⁸ The deadline has been met, though several countries, like the United Kingdom, Germany, the Netherlands and Denmark, had eliminated explicit controls before 1988.⁹

Various approaches have been used to quantify the integration of international financial markets. One way to see the effects of the relaxation of capital controls is to examine interest rates on comparable financial instruments in different countries that are denominated in the same currency. The elimination of capital controls should allow capital flows to equalize these interest rates.¹⁰ This is exactly what has happened in the EC countries that have already eliminated capital controls. Figure 1 presents evidence for the United Kingdom, which abolished exchange controls as of October 24, 1979, and undertook a series of domestic liberalization measures in the 1980s. The U.K.'s deregulation has caused the Eurosterling-London Interbank Offer Rate (LIBOR) spread to collapse near zero.¹¹ Similar evidence exists for other EC countries that have liberalized.¹²

This evidence suggests that most of the effects of liberalizing capital flows for some, but not all, countries have already been realized, reinforcing the point that 1992 is a *series* of changes. There are, however, additional gains possible from the 1992 process. One is that 1992 will make it less costly for financial firms from one member country to be authorized to provide services in other EC countries. New financial services, as well as lower prices for existing services, might also occur. Before discussing these potential gains, we will summarize the major directives that pertain directly to financial services.

MAJOR DIRECTIVES

The major directives of the 1992 program for financial services can be divided into four categories: banking, investment services, undertakings for collective investments and insurance.¹³

Banking. Efforts at EC coordination did not begin with the Single European Act for any of the four categories of financial services. Rather, the SEA has accelerated the process of harmonizing regulations. For example, the First Banking Coordination Directive, which was approved by the Council in December 1977, required member states to establish systems for authorizing and supervising credit institutions.¹⁴

A second example is the Consolidation Supervision Directive of June 1983, which required that credit institutions be supervised on a consolidated basis. Any credit institution owning 25 percent or more of the capital of another financial institution was to be supervised on a consolidated basis by the authorities in the owning institution's home state. Another provision mandated the exchange of information between supervising authorities to obtain an overview of a consolidated company's affairs. To assist this supervisory cooperation, the Bank Accounts Directive of December 1986 harmonized accounting rules for credit institutions.

In the 1992 legislation, the Second Coordinating Banking Directive (2BD) is the primary banking directive. The 2BD allows any credit institution authorized in one member country to establish branches and provide banking services anywhere in the EC. While this so-called "common passport" allows home-country authorization, the credit institution must conform to all local laws. Thus, the host country's business rules, such as reporting requirements and res-

⁸Ireland, Spain, Greece and Portugal have until the end of 1992 to comply, with the latter two having the option to delay compliance until 1995.

⁹According to Blundell-Wignall and Browne (1991), the integration of financial markets internationally began in the mid-1970s with the removal of capital controls in Germany, the United States and Canada. Japan and the United Kingdom relaxed capital controls in the late 1970s, while France, Italy and some other EC countries realized the complete elimination of controls by the middle of 1990.

¹⁰This result is analogous to the effect of eliminating trade barriers on goods. When a country eliminates a tariff on a specific good, the difference between the price of the good in the country's domestic market and that in the international market should narrow.

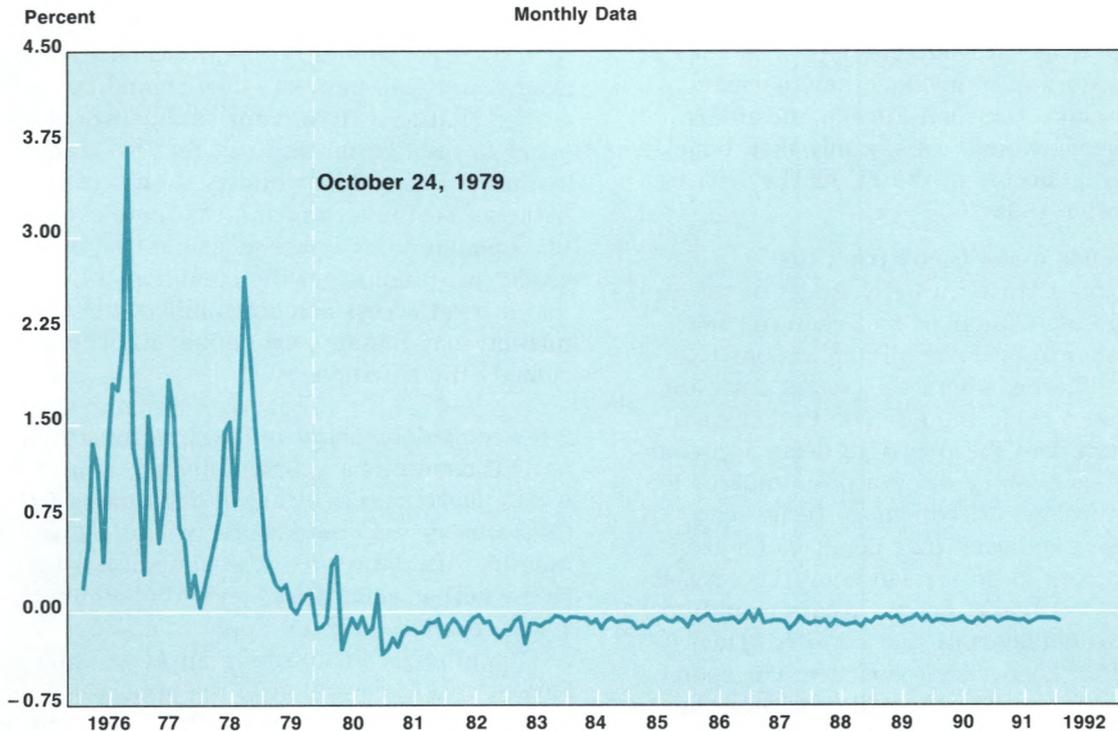
¹¹The two interest rates are ones charged by banks to other banks for three-month loans denominated in British pounds. The Eurosterling rate pertains to loans made outside the United Kingdom and the LIBOR applies to loans made inside the United Kingdom.

¹²See Blundell-Wignall and Browne (1991) for charts similar to figure 1 for Germany, the Netherlands and France.

¹³See U.K. Department of Trade and Industry (1991) for a summary of EC Directives relating to 1992.

¹⁴We refer to credit institutions rather than "banks" because these regulations include institutions other than banks. These would include the European equivalent of thrifts.

Figure 1
Difference Between the Three-Month Eurosterling and Libor Rates



trictions on permissible products and activities, must be followed.

The 2BD also gives the commission some influence in authorizing institutions from outside the EC—the so-called “Reciprocity Clause.” The first, but not the final, draft of this clause created much controversy and is partly responsible for the label “fortress Europe” that has inappropriately been associated with the 1992 program. (See the shaded insert on page 68 for additional discussion of this topic.)

The 2BD is supported by the Own Funds Directive and the Solvency Ratio Directive. The former provides common definitions for the components of the capital base; the latter uses these definitions to establish minimum asset ratios to be met by all credit institutions. All three directives become effective on January 1, 1993.

Investment Services. A related, but more problematic, set of measures deals with investment services. This category covers all aspects of the markets in tradeable securities, including investment banking, stock brokerage and the organization of the exchanges themselves. The key elements of the 1992 program are formulated in the Council Directive on Investment Services in the Securities Field and the Capital Adequacy Directive, neither of which has been adopted formally.

Until recently, observers generally thought both directives would begin operation at the same time as the banking directives because the 2BD gives banks (and other credit institutions) the right to do securities business throughout the EC on a single passport basis. As time passes, this simultaneity becomes less likely. If an identical single passport is not extended to non-

The Second Banking Directive and Fortress Europe

One of the great concerns, often heard outside the EC, is that the 1992 program will lower barriers to internal trade but at a cost of higher external trade barriers. The 1992 program does not introduce new barriers to trade in goods between Europe and the rest of the world. Nonetheless, a mistaken belief persists that access to the EC market will be harder after 1992.

This belief stems partly from the "Reciprocity Clause" in early drafts of the Second Banking Directive. This required the Commission to evaluate all applications for new subsidiaries where the parent company was based outside the EC. The Commission would have had the power to delay approval if the other country did not offer "mirror image" reciprocity. Mirror image reciprocity would have required that EC firms be allowed to operate in foreign countries, just as they could at home, before access would be offered to nationals of that country. This would have been very restrictive. For example, because there is no legal separation between investment banking and commercial banking in the EC, it would have required abolition of the Glass-Steagall Act in the United States before U.S. banks could gain access to the EC.

This requirement was weakened in later drafts of the directive. The final directive simply calls for negotiations with third coun-

tries (that is, countries outside the EC) in the event that EC firms are denied "effective market access." The critical criterion now is that EC firms should not be discriminated against in third markets—they should be accorded "national" treatment. "Whenever it appears to the Commission . . . that EC credit institutions in a third country do not receive national treatment offering the same competitive opportunities as are available to domestic credit institutions and the conditions of effective market access are not fulfilled, the Commission may initiate negotiations in order to remedy the situation."¹

If negotiations about unfair treatment in a non-EC country have been initiated, approval of EC market access by credit institutions from that country may be delayed by up to three months. After this time, the Council must decide whether such delays should continue. This procedure will not apply to any firm already authorized to trade in an EC country. Finally, this intervention in the approval process must not contravene "the Community's obligations under any international agreements, bilateral or multilateral, governing the taking-up and pursuit of the business of credit institutions."² The general structure of the reciprocity clause in the Second Banking Directive is expected to be copied for the other major areas of financial services, including investment services and insurance.

¹See Title III, Article 9, paragraph 4 of the 2BD. In official documents, the 2BD is the "Second Council Directive of 15 December 1989."

² See Title III, Article 9, paragraph 6 of the 2BD.

bank securities firms at the same time, they will be at a disadvantage.

A key problem in formulating regulations in investment services has been that the range of activities covered is much more heterogeneous than in the banking area.¹⁵ Arguments have arisen about which activities to include and how much capital should be required for different lines of business. Initial proposals, for example, incorporated such high capital requirements that some businesses objected strongly. Non-bank securities houses argued that the requirements were so onerous, their business would be driven outside their countries. Universal banks, on the other hand, feared they would be at a disadvantage if securities houses had lower requirements than banks.¹⁶ The latest drafts of the directives incorporate a compromise that appears acceptable to both camps. Banks will be permitted to treat their securities business separately and calculate capital requirements under the investment services rules rather than the banking rules.

Another point of controversy concerns the provision of compensation schemes for investors. A commission recommendation in 1986 suggested the establishment of compensation schemes for depositors (that is, deposit insurance) in credit institutions. In the wider area of investment services, the position of compensation schemes is even less clear. Some countries, like the United Kingdom since the implementation of the 1986 Financial Services Act, have compulsory compensation schemes for investment business, while many others do not. This position raises potential anomalies in cross-border business.

A final sticking point in the Investment Services Directive relates to the monopoly of organized stock exchanges over securities trading. Some countries, like France, have argued for the official stock exchange to have a monopoly.

Without a monopoly, the present French system could not be used throughout the EC. Others, especially the British, are strongly opposed.

Undertakings for Collective Investments. In contrast to the banking and investment services directives, the directive governing Undertakings for Collective Investment in Transferable Securities (UCITS), which are open-ended mutual funds, has already come into effect. The Council Directive on the coordination of laws relating to UCITS took effect in October 1989. The directive establishes minimum requirements for authorization of UCITS and permits their marketing throughout the EC. This freedom is subject to the usual proviso that the host state be notified and local marketing rules be obeyed. Minimum requirements are established for adequate risk spreading, the separation of trustees from managers and the specification of acceptable investments.

Before it was implemented, there was some concern that the UCITS Directive would lead to a migration of UCITS managers to countries, like Luxembourg and Ireland, with the most favorable tax treatment. It is too early to determine whether this expectation is correct. To counteract this possibility, however, efforts were made to reduce tax differences. For example, the British budget of 1989 reduced taxes on unit trusts.

Insurance. A final set of directives on financial services deals with insurance. Insurance provides examples of 1992 initiatives already in effect as well as those many years away. The primary directives are the Second Non-Life Insurance Directive and the Second Life Insurance Directive.

The Second Non-Life Insurance Directive establishes freedom of services for cross-border business within the EC. This freedom, however, applies only for large commercial risks. What is

¹⁵Another reason for the relatively faster agreement on banking is that bank regulation had already been well worked out globally—through the Bank for International Settlements and formalized in the Basle Agreement. The 1988 Basle Agreement replaced differing national regulations for measuring capital adequacy by a single, internationally accepted standard. The goals were to strengthen the soundness of the international banking system and remove regulatory differences that affected the international competitiveness of banks. See Blanden (1988).

¹⁶Generally speaking, EC countries did not have counterparts to U.S. banking regulations that limited their spread geographically or their lines of business activity. As a result, a small number of large banks evolved. For exam-

ple, German banking is dominated by a small number of banks engaging in normal commercial banking as well as buying and selling stocks for others, underwriting new stock issues and owning stock on their own behalf. In fact, German banks are represented on the boards of directors of many companies. In the United Kingdom, merchant banks specialized in the securities business, while commercial banks had the bulk of deposits. Since the deregulation of British financial markets that began on October 27, 1986, known as the Big Bang, U.K. commercial banks have gone universal in that they have merchant bank subsidiaries and are expanding into insurance services, especially life insurance. Belgium is the only EC country that separates investment and commercial banking.

referred to as “mass risk,” which includes most things insured by people other than their lives— theft and fire damage to personal property— remains subject to numerous restrictions. A new, more liberal regime applies to all marine, aviation and shipment risks, and other fire, property and financial risks for situations in which the policy holder is a large commercial company. Here, the insurer has an obligation to notify the authorities (in the insured company’s country), but may write the business directly. For all other businesses, the authorities in each country may continue to control the terms of authorization, premiums, policy conditions and reserve assets.

This Directive took effect in July 1990 and, hence, the large commercial risk market has effectively achieved the single market position already. Unlike banking, this directive did not create a common passport. Thus, branching in other countries is not freely permitted, and establishment still requires authorization in each member state. Two draft “Framework Directives” for life and non-life insurance appeared in 1991 and 1990, respectively. These would establish the single passport for insurance; the fact that the first drafts of these directives did not emerge earlier, however, suggests that they will not be in operation until 1995 at the earliest.

Only modest progress has been made on life insurance so far. The Second Life Insurance Directive was adopted in November 1990 for implementation on May 21, 1993. It only goes a small way, however, toward creating a single market in life insurance. A liberal regime is provided for, but only in cases where the consumer takes the initiative in buying a life insurance policy from a firm in another member country. In all other cases, the restrictive regime applies, under which the insurer may be required to obtain special approval (depending upon local law) and the policy terms may be proscribed.

Under the most recent draft of legislation involving life insurance, whose date of implementation has yet to be agreed upon, insurance companies are permitted to advertise, but they may not approach consumers directly. It also is possible that “local” asset backing for the policy

may be required. This means that, for example, an Italian firm selling insurance in Germany would have to back its German policies with German securities. This draft of the legislation also restricts the role of brokers. For three years after implementation, member states will be able to forbid consumers from seeking policies from other member states through brokers.

Considerable resistance exists in some quarters to the creation of a genuine single market in life insurance. The basic conflict arises because some countries—notably Germany—have had a very conservative attitude to life insurance, while others—like the United Kingdom—have been very innovative. German insurance companies have typically invested in safe fixed-interest securities, and innovation in the industry has been strictly controlled. The United Kingdom, in contrast, allows its firms to invest across a range of assets including property and equities. Thus, the typical British firm’s portfolio is riskier than its German counterpart, but has a much higher average yield, producing significantly lower prices for British products.

The Common Passport

Before discussing the reform process, an important distinction must be made between wholesale and retail financial markets. As demonstrated above, the globalization of international financial markets in the 1970s and 1980s has already led to highly competitive wholesale capital markets across many EC countries. These markets, in which financial firms deal directly with each other, experienced considerable competitive pressures in the past 20 years. Faced with the choice of deregulation or the loss of firms to less-regulated environments in other countries, most nations dismantled much of the regulatory structure in wholesale financial markets.

Retail markets, in which consumers deal with firms to borrow money, purchase insurance and trade stock, are quite different and present the biggest problem for deregulation. These markets retain a myriad of complex regulatory structures and external barriers that are generally justified on the grounds that they protect the small consumer.¹⁷ Regardless of whether

¹⁷For example, the U.K. Financial Services Act of 1986 requires any firm selling investment products in the United Kingdom to register with either the Securities and Investment Board or a recognized regulatory organization. The

firm must conform to a complex set of rules, subject itself to inspections and pay membership charges, which include investor compensation schemes.

domestic officials actually believe this or are simply disguising their protection of domestic firms, the abolition of regulations to increase cross-border trade and competition in retail financial markets is the primary challenge of the 1992 program.

Starting with the existing regulatory structures in each member country, the central principle guiding deregulation is that regulators in each member state are competent to judge which firms are “fit and proper” to do business in the industry. Once a firm has been authorized by the regulatory authority in its home country—so-called home authorization—it is automatically authorized to do business in any other member country and is said to have a “common passport.”

Previously, many countries have allowed firms from other EC countries freedom of establishment, but this freedom has been subject to a separate process of approval in each country.¹⁸ The abolition of this requirement, therefore, will make it easier for firms to establish subsidiaries in other member countries.

Home authorization, however, is not the end of the story. Firms operating outside their home states still have to obey “host country conduct of business rules.”¹⁹ In other words, foreign firms must obey all the local regulations about the nature of acceptable products and the way in which they may be advertised and sold. For example, France does not allow interest payments on checking deposits, while most other EC countries do.

The fact that business rules will continue to differ across countries limits the extent to which there will be a genuine single market. The various rules increase the costs of cross-border activity and are sometimes even anti-competitive. For example, the business rules in some member states define which products can be sold and their respective prices. Thus, one of

the main incentives for attempting to enter new markets—the introduction of new products not offered by local firms—is not guaranteed.

Regulatory Complications from the Common Passport

The move to a common passport will complicate the regulatory process.²⁰ At this point, only hypothetical situations can be offered to suggest the potential difficulties. While firms require authorization only in their home states, the regulatory authorities of other nations have to monitor the activity of these firms within their domain because they are responsible for consumer protection and adherence to business rules.

To illustrate, suppose a German bank establishes a subsidiary in the United Kingdom after 1992 on the basis of its German banking license. It takes deposits and makes loans in British pounds sterling. As the German banking authorities are responsible for prudential supervision, the bank must file the reports required by these authorities. The bank, however, must also register with the Bank of England, fulfill all reporting requirements and conform to all British banking regulations in the United Kingdom—including reserve requirements and banking codes of practice. It must also pay regulatory fees just as any British bank must do.

The lower costs of establishing an office in the United Kingdom may increase the regulatory burden of both the British and German authorities. Suppose, for example, the German bank gets into difficulties, like a run on deposits, or is involved in a breach of rules, like fraud. Clearly, both British and German authorities will have to get involved to resolve the problem. Indeed, a bank with branches (or subsidiaries) across Europe could draw 12 sets of regulators into a dispute over its operations. The number of regulators would rise even further if the

¹⁸For example, Emerson et al. (1988) note that each EC country allows freedom of establishment for foreign banks; however, the conditions under which this may be done vary substantially across countries. High establishment costs make it difficult for a foreign bank to enter and compete successfully with an existing domestic retail bank. Additional obstacles in certain countries, like Italy and Spain, are restrictions on foreign acquisitions and involvement with domestic banks.

¹⁹For an alternative interpretation of the implications of home authorization in the context of the 2BD, see Key (1989). In our view, home authorization applies to the issue of a license and prudential control, but it does not apply to

any behavior that falls under conduct of business rules. Home authorization is much different than home control. Even though a bank is given a license to operate abroad by its home authorities, the bank's subsidiaries will have to obey all the laws attached to banking practice in the foreign countries in which they operate.

²⁰Capie and Wood (1990) make a similar point that the Second Banking Directive will make supervision and regulation much more complicated. They speculate, however, that this complexity may cause a change in regulation from detailed supervision to one in which central banks are primarily lenders of last resort.

Table 1
Deposit Insurance in the EC¹

Country	Limitations (in U.S. dollars as of July 6, 1990)	Coverage ²		
		Deposits in foreign currency	Deposits in domestic branches of foreign banks	Deposits in foreign branches
Belgium	\$14,706	No	No	No
Denmark	39,708	—	—	—
France	72,033	No	Yes	No
Germany	30% of bank's liable capital	Yes	Yes	Yes
Ireland	16,206	—	—	—
Italy	659,385	Yes	Yes	Yes
Luxembourg	14,706	—	—	—
Netherlands	21,486	Yes	Yes	No
Spain	14,789	No	—	No
United Kingdom	35,730	No	Yes	No

SOURCE: Bartholomew and Vanderhoff (1991).

¹Greece and Portugal have no formal systems of deposit insurance.

²The "—" indicates no information was available.

bank's activities spread beyond banking into securities or insurance.

It is also noteworthy that the British authorities have no power to withdraw the banking license if the bank transgresses business rules in the United Kingdom. Even though the Bank of England could stop a bank from trading temporarily, a high degree of communication and cooperation between regulators of the member countries will be required to manage such a problem. Eventually, there might be a formal regulatory agency that operates on a community-wide basis.

The preceding example, which pertains to all member countries, is relatively simple in comparison to the regulatory issues that might arise when services are provided across national borders. Suppose the German bank takes deposits and makes loans in sterling with retail customers in the United Kingdom only by mail or telephone from its head office in Frankfurt. In this case, the German bank need not register with the Bank of England, but has an obligation to conform to British conduct of business rules. This means that the Bank of England must monitor this business in some way. While cases like this may be of trivial quantitative significance (especially in retail trade), they also may generate the greatest regulatory headaches, in terms

of allocating regulatory responsibilities for the monitoring and enforcement of standards of business practice.

Such jurisdictional problems may be greatest where deposit insurance is involved. Table 1 summarizes the deposit protection schemes for commercial banks in the EC. The amount of protection for depositors varies substantially across countries. This may influence where a specific deposit may be made. The high level of protection in Italy could attract large depositors. By the same token, the different levels of protection may confuse depositors. A Spanish depositor, who made a deposit in a French branch in Spain that fails, for example, may mistakenly believe that the French deposit insurance scheme applies. Since deposit insurance is politically sensitive, controversy is not difficult to envision. The EC Commission has drafted a proposal, not yet published, for the harmonization of deposit insurance, but any changes are unlikely to take effect before the mid-1990s.

The almost complete harmonization of regulatory standards is inevitable when transactions within an industry are predominantly of an international nature. By itself, however, 1992 is unlikely to make the transactions in European retail financial markets to be primarily international. Thus, the regulation of retail financial

markets in Europe involves a compromise between host country control and the creation of a single market. Harmonization of business rules will not be complete and, in some cases, may not be even close.

Product Innovation

The potential gains from removing barriers to the spread of new products across borders seem to be positive and potentially quite large. Lower-cost producers of financial services products would prosper at the expense of less efficient firms that now survive only because of regulations that limit competition by foreign firms. Consumers would benefit from having a greater variety of products from which to choose and would pay lower prices for them.

The basic problem is the resistance by some countries to relaxing domestic regulation of an industry. Frequently, a country's business rules inhibit product innovation. For example, current German regulations restrict the introduction of new insurance products into Germany. Even with a common passport, a foreign insurance firm faces a major deterrent to entering the German market. Taken together, German citizens and foreign insurance firms clearly would benefit from free trade in new products, but it is also clear that some German insurance companies would suffer from the influx of competition.

This is the area where the least progress has been made in the 1992 program. In view of the time required to reach and implement EC decisions, as well as the current controversy about these decisions, the potentially large gains from product innovation and lower prices in many financial services will not be realized any time in the near future.

POTENTIAL BENEFITS OF THE SINGLE MARKET

The preceding discussion raises doubts about how sizable the gains will be from the 1992 legislation in the financial services sector; however, we do not provide an estimate of the

gains themselves.²¹ These doubts are at odds with the potential gains estimated in the Cecchini Report, the best-known attempt to measure such gains.²² This report found substantial potential gains from the creation of a single market in many industries.²³ The gains from the liberalization of the financial services sector, which are presented and examined below, were found to be substantial as well.

Financial Services: The Estimated Gains of Eliminating Trade Barriers

The reduction of trade barriers can generate gains via a number of routes, all of which are driven by increased competitive pressures. For example, the reduction of trade barriers will allow firms with lower production costs to expand their production, increasing total output and economic welfare. Other gains can be realized as larger markets increase the opportunities to use certain production technologies that lower per-unit production costs. Finally, increased competition tends to drive down profit margins, eliminate waste and stimulate the development of new products and less costly methods to produce existing products. Ultimately, the competitive pressures will allow consumers throughout the EC to consume (use) more financial services at lower prices per unit.

The competitive pressures resulting from 1992 are expected to narrow the price differences of a financial service across the EC. As part of the Cecchini Report, Price Waterhouse calculated prices across eight EC countries for the 16 financial services—seven banking services, five insurance services and four securities services—listed in table 2. The average of the four lowest prices for each service was chosen as the likely price after the elimination of trade barriers. The potential price declines for financial services are listed in table 3. Exactly how much of this potential decline will be realized is difficult to estimate, so an expected decline (with a plus/minus 5 percentage-point range) was defined as one-half of the potential decline.

²¹To reiterate, we are not questioning the gains from the abolition of exchange controls; rather, we are questioning the gains from the common passport in light of the continuation of different conduct of business rules.

²²In theory, the abolition of trade barriers for goods traded among a group of countries may or may not yield net benefits. An elementary demonstration of this result can be found in Coughlin (1990).

²³The Cecchini Report estimates that the gains from completing the internal market range from 4.3 percent to 6.4 percent of gross domestic product in the EC. See Coughlin (1991) for an examination of the approach used in the Cecchini Report as well as other approaches used to estimate the economic effects of 1992.

Table 2

List of Standard Financial Services or Products Surveyed

<u>Name of standard service</u>	<u>Description of standard service</u>
Banking services	
1. Consumer credit	Annual cost of consumer loan of 500 ECU. Excess interest rate over money market rates.
2. Credit cards	Annual cost assuming 500 ECU debit. Excess interest rate over money market rates.
3. Mortgages	Annual cost of home loan of 25,000 ECU. Excess interest rate over money market rates.
4. Letters of credit	Cost of letter of credit of 50,000 ECU for three months.
5. Foreign exchange drafts	Cost to a large commercial client to purchase a commercial draft for 30,000 ECU.
6. Travellers checks	Cost for a private consumer to purchase 500 ECU worth of travellers checks.
7. Commercial loans	Annual cost (including commissions and charges) to a medium-sized firm of a commercial loan of 250,000 ECU.
Insurance services	
1. Life insurance	Average annual cost of term (life) insurance.
2. Home insurance	Annual cost of fire and theft coverage for house valued at 70,000 ECU with 28,000 ECU contents.
3. Motor insurance	Annual cost of comprehensive insurance, 1.6 liter car, driver 10 years experience, no-claims bonus.
4. Commercial fire and theft	Annual coverage for premises valued at 387,240 ECU and stock at 232,344 ECU.
5. Public liability coverage	Annual premium for engineering company with 20 employees and annual turnover of 1.29 million ECU.
Brokerage services	
1. Private equity transactions	Commission costs of cash bargain of 1,440 ECU.
2. Private gilt transactions	Commission costs of cash bargain of 14,000 ECU.
3. Institutional equity transactions	Commission costs of cash bargain of 288,000 ECU.
4. Institutional gilt transactions	Commission costs of cash bargain of 7.2 million ECU.

SOURCE: Emerson et al. (1988), p. 102.

Using the expected price declines for financial services, the gains for the eight EC countries examined are estimated to be 21.6 billion ECU, which is 0.7 percent of their gross domestic product.²⁴ The distribution of these gains across the EC are listed in table 4. One's confidence in these estimates, as acknowledged in Emerson et al. (1988), should not be great. First, the price comparisons themselves can be questioned. Products such as "credit" and "life insurance"

have been priced as if the characteristics are the same in each country. For example, no attempt has been made to adjust for theft and mortality differences across countries, and, hence, it is not clear that homogeneous products are compared.

More important, even if price differences exist for identical products, it is far from clear that the 1992 legislation will eliminate such differ-

²⁴The ECU, which stands for the European Currency Unit, is composed of the weighted averages of the currencies of the 12 member countries and is the unit of account for the EC. Even though much negotiation remains, the ECU is

likely to become the single currency of the EC. For a brief history of the ECU, especially recent developments, see Tyley (1991). One ECU was equal to \$1.29 on February 11, 1992.

Table 3
Potential and Expected Price Declines for Financial Services

Country	Potential price fall	Range of expected fall
Belgium	23%	6-16%
France	24	7-17
Germany	25	5-15
Italy	29	9-19
Luxembourg	17	3-13
Netherlands	9	0-9
Spain	34	16-26
United Kingdom	13	2-12

SOURCE: Emerson et al. (1988), p. 104.

ences. The reason is that business rules will continue to differ from country to country, thereby impeding trade in financial services and limiting potential gains to levels below those estimated in the table.²⁵ Thus, the value of the single passport is diminished considerably by the inability of firms entering new markets to offer a full line of products and services.

Grilli (1989a) has also raised doubts about the estimates in the Cecchini Report on the likely effects of liberalization on wholesale and retail banking throughout the EC. Grilli doubts whether a perfectly competitive market structure is an accurate approximation of retail banking post-1992. Much evidence suggests that banks have market power in their retail markets that will not be eliminated by the 1992 legislation. For example, within the same country, which is already a homogeneous regulatory and institutional environment, the terms of a deposit contract, such as the interest rate paid on a time deposit, frequently vary across banks. In addition, the transaction costs of switching between domestic and foreign bank accounts will remain after 1992, and a business relationship with a local bank will remain less complicated than with a foreign bank. Furthermore, Grilli argues,

²⁵Evidence that supports this view was highlighted by Grilli (1989b). For individual financial services, he noted that the price dispersion across countries that had already liberalized, like Germany, Belgium, Luxembourg, the Netherlands and the United Kingdom, was no less than across the remaining EC members.

²⁶Separable portfolios means that a bank with subsidiaries in more than one member state will operate a matched

Table 4
Estimated Gains Resulting from the Expected Price Reductions for Financial Services

Country	Total (million ECU)	Percentage of GDP
Belgium	685	0.7%
France	3,683	0.5
Germany	4,619	0.6
Italy	3,996	0.7
Luxembourg	44	1.2
Netherlands	347	0.2
Spain	3,189	1.5
United Kingdom	5,051	0.8
Total	21,614	0.7

SOURCE: Emerson et al. (1988), p. 106.

the use of other, more appropriate market structures produces smaller estimated gains from 1992 than those based on perfect competition.

The bottom line is that the estimates in the Cecchini Report are probably optimistic. Of course, the absence of better estimates precludes any quantitative statements about the degree of overstatement.

Single Currency

The preceding discussion, including the estimates in the Cecchini Report, has presumed that 12 currencies continue to exist within the EC, albeit tied together by the exchange rate target zones of the European Monetary System (EMS). Thus, far from there being a single market in financial services, there will continue to be 12 quite separate markets at the retail level. Within those markets, firms will operate separable portfolios and most retail customers will stick almost exclusively to their domestic environment.²⁶

The creation of a single currency, which was agreed upon at Maastricht, the Netherlands, in

deposit and loan book in each currency. For example, a Dutch bank with a subsidiary in Greece will use drachma deposits rather than guilder deposits to fund drachma loans.

December 1991 will induce major changes, irrespective of the regulatory regime.²⁷ Obviously, the foreign exchange market—and with it the costs of currency conversion—among the EC members will be eliminated. Closely related is the fact that the international accounting of many businesses will be simplified by the elimination of multiple currencies. On the other hand, many contracts will have to be rewritten. For example, a long-term bond contract that requires interest and principal payments in a specific currency, say French francs, will have to be modified.

Generally, retail customers will continue to do business with familiar institutions in their own countries, while wholesale market arbitrage and potential competition ensure that product prices are brought closely into line throughout the EC. These competitive pressures will lead to changes in the regulatory structure so that the conduct of business rules become more similar and, in some cases, identical; otherwise, firms in some countries will be at a competitive disadvantage relative to firms in other countries.²⁸ It is difficult to predict exactly how business rules will be harmonized for each financial service and, thus, how extensive the potential gains from a “free” single market will actually be. A more homogeneous and unitary monitoring mechanism is likely, although its full implications are equally hard to anticipate. Nonetheless, the gains from a single market are more likely to be realized if monetary union is achieved.

CONCLUSION

The goal of 1992 is to create a single European market, a goal that encompasses the financial services sector. Our assessment is that the 1992 reforms are a small step toward the liberalization of the financial services sector. Clearly, 1992 will contribute to the realization of some gains, especially in countries that have previously resisted liberalization. Nonetheless, serious doubts exist about how extensive the changes will be in the near future and, thus, the magnitude of the gains to be realized overall. In reali-

ty, the 1992 legislation will not cause major changes. The reason is that virtually all of the potential efficiency gains in the financial services sector can be (or have been) achieved through the combination of the abolition of exchange controls and the freedom of foreign firms to enter domestic markets. In fact, the former was implemented in July 1990 (in all but Spain, Portugal, Greece and Ireland).

The key innovation of the 1992 legislation is the split between home country authorization and host country conduct of business rules. This dichotomy will create problems. Whereas wholesale markets already are highly integrated, not just within Europe but at the global level, 12 quite different retail markets will continue to exist in the near future. This segmentation means that many existing regulatory burdens will remain; however, regulatory complications may multiply as numerous domestic and EC authorities become involved in the supervision of a single firm. Finally, in some markets, like insurance, rigid regulation of domestic markets will delay any implementation of the current model of a framework directive until well beyond 1992.

The greatest boost to financial market integration, once markets are open, will be the use of a single currency. With a single currency, pressure will mount to revise the regulatory structure so that the conduct of business rules are homogeneous.

Major changes in the regulatory structure lie ahead. It is these changes that will create a single market and allow for the realization of substantial gains in the next century.

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²⁷A recent issue of *The Economist* (“The Deal is Done,” 1991) characterizes the Maastricht Treaty as important as the Treaty of Rome because it lays the foundation for a much closer union of countries via a single currency, a common foreign and defense policy, common citizenship and a parliament with power. A summary of the Maastricht Treaty as it pertains to monetary union can be found in “Mapping the Road” (1991), page 5.

²⁸Not surprisingly, the U.S. legal system has had considerable experience with conflicting laws and regulations across states. The Uniform Commercial Code is an excellent example of states reaching general agreement on numerous laws. See Levine (1976) for additional details.

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