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Monetary Policy in the Great Depression and Beyond:
The Sources of the Fed's Inflation Bias

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Abstract

The deflationary outcome of monetary policy during the Great Depression had two fundamental causes: 1) the Federal Reserve's use of flawed operating guides, and 2) a decision to make preservation of the gold standard the overriding objective of policy. The Great Depression resulted in lasting changes in the domestic and international monetary regime that substantially weakened the gold standard, increased political control of monetary policy, and created new opportunities to monetize government debt, all of which gave monetary policy an inflation bias. Uncorrected flaws in the Federal Reserve operating strategy and the lessening of the gold standard constraint enabled a sustained inflationary monetary policy to emerge in the 1960s. Ultimately, that policy led to the collapse of the Bretton Woods System and abandonment of international linkages altogether.

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Monetary Policy in the Great Depression and Beyond: The Sources of the Fed's Inflation Bias

On August 15, 1971, President Nixon announced his "New Economic Policy." Nixon's plan included two features that reflected on the state of American monetary policy. First, to combat inflation, Nixon imposed wage and price controls. And, second, in response to America's long-running and worsening international payments deficit, Nixon suspended convertibility of the dollar into gold. Both policies were intended to be temporary. Wage and price controls were temporary, but the gold window appears to be permanently shut and the dollar has floated against other currencies since 1973.

The imposition of wage and price controls and suspension of dollar convertibility reflected the failure of U.S. monetary policy to control inflation under the prevailing international monetary regime -- the Bretton Woods System. Although Bretton Woods was at its heart a gold standard, it did not impose the same level of discipline on monetary policy that the pre-war gold standard had. Under the classical gold standard, market driven gold outflows would limit inflationary money supply growth and provide long-run price stability. Bretton Woods was a gold standard managed by central banks, however, and with central bank cooperation a country could run a long-term payments deficit if other countries were willing to hold its currency. The Bretton Woods System ultimately collapsed because other countries became unwilling to hold dollars and because the United States was unwilling to impose a monetary policy on itself that would ensure convertibility of dollars into gold.

The United States had confronted a similar choice before. In 1931, uncertainty about the ability or willingness of the United States to remain on the gold standard precipitated gold outflows that forced American monetary authorities to make a decision. They could choose to defend their gold reserve by tightening monetary policy or they could suspend convertibility of the dollar into gold. In the midst of the Great Depression Federal Reserve officials understood

that a tighter monetary policy might worsen the downturn, but to preserve the gold standard they chose to raise interest rates and allow a contraction of bank reserves.

In this paper, I argue that American officials chose to abandon gold in 1971 because of institutional and ideological changes brought about by the Great Depression. Key changes included a new avenue for monetizing Federal Government debt, a weakening of the Federal Reserve System's insulation from political interference, and a new economic policy ideology that doubted the stability of private markets and prescribed government management of aggregate demand.

The most important change for monetary policy stemming from the Great Depression concerned the gold standard. In 1931, Federal Reserve officials viewed the gold standard as fundamental to long-run economic prosperity and were willing to defend the system even if it meant taking actions that would worsen the ongoing depression. In 1971, U.S. economic policy makers no longer viewed the gold standard in this way, and were unwilling to tighten monetary policy to preserve the gold standard, even though the United States had a rising rate of inflation and a growing economy. The choice to abandon Bretton Woods was made, I argue, because the Great Depression had weakened the ideological underpinnings of the gold standard.¹

During the Depression, the gold standard had failed to preserve prosperity for those countries with even the largest reserve holdings, and suspension proved to be a prerequisite for recovery in most countries (Eichengreen and Sachs, 1985). Although many people continued to view the gold standard and fixed exchange rates positively, most believed that the gold standard required the management of government officials. Thus, after World War II, the managed gold

¹ Calomiris and Wheelock (1997) examine institutional changes to U.S. monetary policy making resulting from the Great Depression, and argue that those affecting the gold standard were the most important. That paper focuses on Federal Reserve policy during 1933-41 in particular, and during the 1950s and 1960s generally. By contrast, the present paper examines in much greater detail the policy record leading up to suspension of gold payments in 1971, and how it compares with Federal Reserve policy during the Great Depression.

standard of Bretton Woods supplanted the pre-war gold standard. Under Bretton Woods, the United States was able to run an inflationary monetary policy without the swift discipline of gold outflows. The initial impetus for inflation resulted from other changes -- increased political pressure on the Fed and attempts to stimulate output by increasing aggregate demand, for example, as well as from flaws in the Fed's basic operating strategy. But under Bretton Woods, inflation could gather substantial momentum before policy makers were forced to confront the consequences of their policies. In the face of a hemorrhaging balance of payments deficit and no strong ideological attachment to gold, Bretton Woods collapsed and external constraints on domestic monetary policy were abandoned.

This paper begins with an overview of monetary policy during the Great Depression. By many, though not all, possible measures, monetary policy was exceptionally contractionary during 1929-33, and I examine why the Fed pursued such a policy during this period. Next, I identify and discuss key institutional changes to the monetary policy environment that resulted directly from the Great Depression. I argue that these changes help explain the inflation bias of the Fed's post-World War II monetary policy. Finally, I describe the Federal Reserve's response, or lack thereof, to the growing balance of payments deficits leading up to the collapse of Bretton Woods in 1971, and how the decision to abandon gold in 1971 was a legacy of the Great Depression.

Monetary Policy in the First Phase of the Great Depression

By almost any measure, monetary policy during 1929-33 was a disaster: the money supply and price level both fell by one-third, *ex post* real interest rates reached double-digits, and banks failed by the thousands (see Table 1). How could the Fed have let this happen?

The explanations for the Fed's disastrous monetary policy during the Great Depression largely fall into two categories. One attributes policy failures to innocent mistakes or neglect,

while the other contends that the Fed willfully engineered contractionary monetary policy to foster bureaucratic objectives, or in response to interest group pressure. Although some political scientists and public choice economists favor the latter explanation (e.g., Epstein and Ferguson, 1984; Anderson, et al., 1988), most economists and economic historians blame the Fed's policy on misguided policy rules, as well as on petty jealousies that limited the Fed's ability to respond decisively to rapidly changing conditions.

The most prominent explanation of Federal Reserve behavior during the Great Depression is that of Friedman and Schwartz (1963), who argue that a distinct shift in policy occurred with the death in 1928 of Benjamin Strong, Governor of the Federal Reserve Bank of New York. Like Fisher (1935) before them, Friedman and Schwartz (1963) contend that Strong understood how to employ the tools of monetary policy to minimize cyclical fluctuations in output and prices and to prevent or limit financial panics. His death created a void of both leadership and understanding which left the Fed unresponsive to financial crises, bank runs, and their contractionary effects.

Under Strong's leadership, the Fed had used the tools at its disposal to pursue both domestic and international objectives (Wheelock, 1991). Large open-market purchases and discount rate reductions in 1924 and 1927 were apparent attempts both to encourage domestic economic growth and to enable Great Britain to attract gold reserves (by lowering U.S. interest rates relative to those in Britain). Open-market sales and discount rate hikes in 1928-29, on the other hand, were intended to discourage stock market speculation, which at least some Fed officials viewed as a manifestation of inflation.

On the surface, the Fed seems to have been less responsive to the Depression than it had been to earlier, smaller, cyclical downturns. Table 2 presents a rough comparison of Federal Reserve actions during the initial phase of the Great Depression (1929-31) with Fed actions

during the recessions of 1924 and 1927. The Fed's Index of Industrial Production serves as a measure of economic activity. The index declined approximately 20 points from the cyclical peak in April 1923 to the trough in July 1924. The recession of 1927 was considerably more modest -- the index declined 11 points from October 1926 to October 1927. By contrast, the Index of Industrial Production declined by 42 points between July 1929 and July 1931, and another 9 points from July 1931 to October 1931. In terms of the Fed's basic policy tools -- the discount rate and open-market purchases of government securities -- the Fed was much less vigorous in 1929-31 than it had been in response to the smaller recessions of 1924 and 1927. This fact, along with the occurrence of banking panics and sharp declines in the money stock and price level during 1929-31, lead Friedman and Schwartz (1963) to conclude that the intent and implementation of monetary policy during the Great Depression were dramatically different than they had been in 1924 or 1927.²

Despite the Fed's weak response to the Depression, some researchers argue that policy changed little, if at all, with Benjamin Strong's death (e.g., Wicker, 1966; Brunner and Meltzer, 1968; Wheelock, 1991). During the Depression, the Fed used borrowed reserves (discount window loans) and market interest rates as policy guides.³ When member banks borrowed relatively little from the Federal Reserve discount window or market interest rates were unusually low, Fed officials interpreted monetary conditions as "easy." Conversely, high levels

² Wheelock (1991) presents econometric estimates of the Federal Reserve "reaction function" for 1924-1929. Simulations of this function also illustrate that the Fed made fewer open-market purchases and cut its discount rate less during 1929-31 than it would have done under the pre-1929 reaction function. But, as discussed below, this does not necessarily imply that the policy regime, i.e., the Fed's objectives or strategy, had changed.

³ The use of open-market operations for objectives other than to secure earning assets evolved in the early 1920s, but their use to manipulate instruments or operating targets, such as borrowed reserves, evolved only gradually as the Fed gained experience. Well into the Depression, the directions to the Fed's trading desk from the Open Market Committee specified the dollar amounts of securities the desk was authorized to buy or sell. By 1932, however, discussion at Open Market Committee meetings turned more toward the desired level of excess reserves, and focused less on the specific dollar volume of securities to buy or sell. Later in the '30s, the Committee targeted yields on Treasury securities, as well as excess reserves.

of borrowed reserves or high interest rates signaled that money was “tight.” Once the Depression began, both borrowed reserves and interest rates fell sharply and generally remained low, giving Fed officials the impression that money was plentiful and “cheap.”

The Fed’s use of discount window borrowing and interest rates as policy guides during the Depression appears consistent with the policy framework that Benjamin Strong had outlined when he was running the Fed. Speaking to Federal Reserve officials in 1926, for example, Strong described his rule of thumb for determining how to use open-market policy during a recession:

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 [open-market] 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.... When member banks are owing us about 50 million dollars or less the situation appears to be comfortable, with no marked pressure for liquidation. (quoted by Chandler, 1958, pp. 239-40)

By Strong’s guidelines, additional open-market purchases were not called for in 1929-31. The borrowed reserves (discount loans) of all Fed member banks as well as those of New York City banks declined far below their levels of 1924 and 1927 (see Table 2). Similarly, money market interest rates were unusually low in 1930-31. Thus, by Strong’s measures, the stance of monetary policy in 1930-31 appears to have been quite easy. Policy makers inferred that there was little more the Fed could, or should, do, and that it was now up to the economy to respond. As Strong (1926, p. 468) had said on another occasion, “The Reserve Banks do not *push* credit into use” (emphasis in original).

Many economists have noted that rigid use of borrowed reserves or interest rates as policy instruments will cause the money supply to rise and fall procyclically because borrowed reserves and interest rates tend to vary positively with economic activity. Moreover, the banking crises of 1929-33 made borrowed reserves an especially poor indicator of monetary conditions during the Depression because a fear of runs made banks especially reluctant to suggest any weakness to depositors, which discount-window borrowing might do (Wheelock, 1991).

Although a few System officials questioned the reliability of borrowed reserves as a policy guide during the Depression, the prevailing view was that monetary conditions were exceptionally easy, and that the economy's failure to expand was not the fault of monetary policy. We cannot say for certain whether monetary policy would have been different during 1929-31 had Benjamin Strong lived, but it does seem to have been consistent with Strong's response to business cycle downturns in 1924 and 1927, and the guidelines for assessing the stance of monetary policy he had outlined.

The Gold Crisis of 1931

Federal Reserve policy during the initial phase of the Great Depression -- from the stock market crash in October 1929 through September 1931 -- was largely predictable from the policy guidelines followed by Benjamin Strong during the 1920s. But interest rates and discount window borrowing shot up dramatically in the fourth week of September 1931 and remained high until early 1932. During this period the Fed raised its discount rate but failed to make significant open-market purchases, even though the Depression was getting worse and monetary conditions were exceptionally restrictive.

The year 1931 was marked by a series of financial crises that led to suspension of the gold standard by a number of European countries, culminating with Great Britain on September 21. Following Britain's departure from gold, speculation that the United States would soon

follow triggered a massive gold outflow from the United States and attendant decline in commercial bank reserves. The Federal Reserve acted to stem the outflow by raising its discount rate -- the classic defense -- but did not use open-market operations to replace the outflow of commercial bank reserves.

In the six weeks ending October 28, 1931, the monetary gold stock of the United States declined by \$727 million, or some 15 percent. At this point, the gold stock stabilized, but uncertainty about the condition of American banks caused bank customers to redeem their deposits for currency. Between mid-September and the end of December, currency held by the public rose \$544 million (11 percent). Banks borrowed heavily from the Federal Reserve to replace reserves lost from deposit redemptions for gold and currency, even though the Fed had increased its discount rate from 1.5 percent to 3.5 percent.⁴

The Fed made virtually no open-market purchases of government securities during the crisis. On February 24, 1932, the Fed's security portfolio was the same size that it had been on September 16, 1931, and thus open-market operations had contributed nothing toward offsetting the gold and currency outflows. While increased discount window borrowing offset these outflows somewhat, member bank total reserves still fell by \$540 million, or 22 percent, between mid-September and the end of February.

On the surface, the Fed's behavior in the fourth quarter of 1931 appears inconsistent both with Benjamin Strong's policy guidelines and with appropriate lender of last resort policy. As Friedman and Schwartz (1963, pp. 315-22) describe, the Fed had acted to halt an "external drain" of reserves from the banking system (gold outflows), but not the "internal drain" (conversion of deposits into currency).

⁴ This refers to the discount rate of the Federal Reserve Bank of New York. By December, the discount rates of all twelve Reserve Banks were at 3.5 percent or higher. The Fed also augmented bank reserves by purchasing bankers acceptances from member banks. The Fed purchased all eligible acceptances offered by banks but, as with its discount rate, the Fed increased the interest rate at which it made these purchases.

The Fed argued that it had not made open-market purchases during the crisis of 1931 because its own reserve position was in jeopardy. The Federal Reserve Banks were required to maintain gold reserves equal to 40 percent of their notes outstanding and 35 percent of their deposit liabilities (which consisted mainly of member bank reserve accounts). In addition, the Reserve Banks were required to hold collateral in the form of gold or eligible securities against their note issues (gold held as reserves also counted as collateral). Finally, the Reserve Banks were required to deposit gold with the U.S. Treasury equal to at least 5 percent of their note issues that were collateralized by securities.

Securities eligible for use as collateral for Federal Reserve note issues included bankers acceptances and commercial notes the Reserve Banks had purchased or discounted for member banks, but not government securities acquired in the open-market. Thus, purchases of government securities increased Fed liabilities but did not add to the collateral backing them, and so the Fed had to hold excess reserves before it could engage in open-market purchases.⁵

From July to October 1931, Federal Reserve Bank gold reserves declined from over 84 percent of Fed liabilities to 63 percent. Although the Fed still had sufficient gold to cover its gold reserve requirement, some of its excess gold reserve was used as collateral for Reserve Bank note issues. Consequently, the Fed's "free gold," i.e., the amount of gold not currently pledged as reserves or collateral, dwindled.

In its 1932 *Annual Report*, the Federal Reserve Board implied that a lack of free gold reserves had kept it from purchasing government securities during the 1931 crisis, and noted that large purchases had followed enactment of the Glass-Steagall Act of February 27, 1932, which had expanded the types of securities that were eligible for use as collateral for Fed liabilities to

⁵ Whereas Fed holdings of government securities could not serve as collateral, discount window loans always produced collateral, including those secured by commercial bank holdings of government securities.

include U.S. Government securities (see also the *Federal Reserve Bulletin*, March 1932).

Friedman and Schwartz (1963, pp. 399-406) contend that the Fed's claim that a lack of free gold had prevented open-market purchases was a ruse, though others, such as Epstein and Ferguson (1984, pp. 964-65) argue that Fed officials truly felt constrained by a lack of reserves.

Regardless of whether or not the Fed was constrained by its collateral requirement, the System had another option -- the Federal Reserve Board had the right to suspend the Fed's reserve requirements. I am aware of no evidence that the Fed considered suspension, however. Wicker (1966, pp. 169-70) argues that Fed officials feared that open-market purchases would exacerbate gold outflows by increasing doubt about the Fed's resolve to maintain the value of the dollar in terms of gold over the long-run. Presumably these officials believed that suspension of the Fed's reserve requirements would also cause gold outflows, and hence that a combination of suspension and open-market purchases was untenable.

Did The Fed Follow Gold Standard Orthodoxy?

Fed officials believed strongly in preserving the gold standard and at first glance their policy actions appear to have reflected gold standard doctrine. But, two aspects of policy -- the Fed's delay in raising its discount rate following Britain's suspension of the gold standard, and the Fed's long-time policy of limiting the impact of gold flows on the domestic money supply -- suggest otherwise.

Wicker (1996, pp. 86-94) argues that the gold standard played only a "minor" role in the discount rate increases of October 1931, citing the fact that the discount rate was not increased until two and one-half weeks after Britain suspended gold payments and the United States had experienced heavy gold outflows. As further evidence, he cites meeting records of the board of directors of the Federal Reserve Bank of New York in which George Harrison, Governor of the New York Fed, argued against raising rates in the wake of Britain's action, and then buried

defense of gold among other reasons when later advocating a discount rate increase. Wicker argues that the Fed's policy was thus not a "knee-jerk" response to gold standard conventions.

Chandler (1971, p. 177) interprets the Fed's delay in raising its discount rate somewhat differently. He argues that some Fed officials believed that a discount rate increase might suggest weakness and thereby exacerbate gold outflows, though fear that a rate increase might hurt the economy also played some part in the delay. Moreover, other Federal Reserve policy makers did press for an immediate discount rate increase to defend the gold standard. Fed Governor Eugene Meyer, for example, argued that "an advance in the rate was called for by every known rule, and ... foreigners would regard it as a lack of courage if the rate were not advanced" (quoted by Wicker, 1996, p. 93). Friedman and Schwartz (1963, p. 383) cite a memorandum prepared for a meeting of the Fed's Open Market Committee in November 1931 which concluded that the "foreign and domestic drains upon bank reserves were met in the classic way by increases in the discount rate combined with a policy of free lending." Although disputing the memo's conclusion regarding the policy's efficacy, Friedman and Schwartz (1963) agree that the Fed had sought to maintain the gold standard.

Besides the delay in raising the discount rate in 1931, the Fed's long-standing policy of limiting the impact of gold flows on the domestic money stock also suggests that the Fed was not fully committed to the gold standard. Gold standard doctrine (the "rules of the game") held that gold inflows (outflows) should be permitted to increase (decrease) a country's money stock and price level so as to induce shifts in capital flows and the balance of trade that would limit future gold movements.⁶ Since the early 1920s, however, the Fed had largely offset reserve fluctuations caused by flows of gold, currency and other sources by varying the quantity of reserves supplied

⁶ See Eichengreen (1992) or Temin (1989) for detail about the operation of the international gold standard and its role in the Great Depression.

by open-market operations and discount window lending. In essence, the Fed “sterilized” gold flows, as Benjamin Strong explained in 1926:

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 on the stock of gold and bore a constant relationship to the gold stock.... But in recent years the relationship between gold and bank deposits is no longer as close or direct ... because the Federal Reserve System has given elasticity to the country's bank reserves.... Federal Reserve bank credit is an elastic buffer between the country's gold supply and bank credit. (Strong, 1926, p. 470)

Moreover, Strong credited the Fed with preventing inflation by offsetting gold inflows 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 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 gold imports continued. Thus ... the presence of the Reserve System may be said to have prevented rather than fostered inflation. (Strong, 1926, p. 471).

Although the Fed generally sterilized gold flows, it proved willing to deviate from that policy when it seemed necessary to protect the gold standard. The easing of monetary policy in 1924 and 1927 seems at least partly motivated by a desire to repel gold inflows, and thereby assist Britain's ability to maintain gold reserves (Wicker, 1966; Wheelock, 1991). Moreover, when gold outflows reduced the Fed's reserve ratio in 1920-21, the Fed increased its discount rate to 7 percent (a level not reached again until 1973) and endured a sharp deflation in order to preserve its gold reserve. This episode demonstrated the Fed's resolve to maintain its gold reserve and set the precedent for its policy in late 1931. Benjamin Strong may have “discovered” and actively used open-market policy, but he was unwilling to conduct policy outside the framework of the gold standard. He testified 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).

Like Strong, Federal Reserve officials in 1931 viewed preservation of the gold standard as fundamental to long-run economic stability, and to preserve the gold standard for the long-term they were willing to undertake policies that might be destabilizing in the short-run. Their response to the gold crisis of 1931 may have sealed the fate of Herbert Hoover and the Republicans in Congress, however, and ensured the election of politicians who would prove willing to change dramatically the institutions of monetary policy making in the United States, including the gold standard.

Institutional Changes to the Monetary Policy Regime⁷

The year 1932 marked the beginning of a series of institutional reforms with potentially large consequences for monetary policy (see Table 3). Among the most significant were the Glass-Steagall Act of 1932, which permitted the Federal Reserve to use government securities to back its note issues; suspension of the international gold standard by executive order on March 6, 1933 (ratified by Congress on March 9); the Thomas Amendment to the Agricultural Adjustment Act of 1933 which, among other things, permitted the Federal Reserve to adjust commercial bank reserve requirements; the Gold Reserve Act of 1934, which authorized the president to fix the dollar price of gold and established the Treasury's Exchange Stabilization Fund; and the Banking Act of 1935, which markedly altered the structure of the Federal Reserve System and expanded the Fed's authority to adjust reserve requirements.

By permitting U.S. Government securities to serve as backing for Federal Reserve notes, the Glass-Steagall Act of 1932 removed an important constraint on discretionary monetary policy and enhanced the Fed's ability to initiate transactions that monetized government debt.⁸

Although he lent his name to the enabling legislation, Carter Glass, who had sponsored the

⁷ This section draws heavily on Calomiris and Wheelock (1997), where additional detail can be found.

⁸ During World War I, the Fed lent reserves to banks against their holdings of U.S. Government securities at a discount rate that guaranteed banks a profit on their security holdings. This also had the effect of monetizing government debt.

original Federal Reserve Act, apparently voiced considerable worry about the inflationary potential of permitting government obligations to serve as collateral for Federal Reserve notes (Chandler 1971, p. 189). I argue below that Glass was prescient in his concerns.⁹

The next institutional change came when President Franklin Roosevelt suspended the gold standard upon taking office in March 1933. Roosevelt was willing -- perhaps forced -- to take the step that Federal Reserve officials had so feared. As in other countries, economic recovery followed suspension and thereby gave credibility to a regime of "managed money" (see Eichengreen, 1992 or Temin, 1989).

Using authority granted by the Gold Reserve Act of January 1934, Roosevelt fixed the value of gold at \$35 per ounce (the previous level had been \$20.67). Although the ownership of gold and its use for domestic payments remained prohibited, the United States returned to the gold standard for the settlement of payments with other countries that also were on the gold standard. The restored gold standard, however, differed fundamentally from the previous standard in the degree to which its operation was removed from private markets and placed under control of government authorities. Americans were forbidden from holding gold, gold clauses in private contracts were made illegal, and the Treasury would sell gold only for making foreign payments.

Gold also was no longer regarded as an absolute exogenous check on government manipulation of the supply of money. Under the weight of the Great Depression, the ideology of the gold standard, which viewed gold as fundamental to a country's economic prosperity, had cracked. Although the dollar remained linked to gold, the link was weakened and, perhaps more

⁹ The Glass-Steagall Act of 1932 was originally set to expire after one year, but was made permanent in 1933. It should not be confused with the Banking Act of 1933 which, among other things, established Federal deposit insurance, separated commercial and investment banking, and outlawed the payment of interest on demand deposits. The Banking Act of 1933 is also sometimes referred to as the Glass-Steagall Act.

importantly, government authorities had demonstrated a willingness to manipulate the gold standard to limit the extent to which it would interfere with discretionary monetary policy. Thereafter, when the Fed's gold reserve requirement threatened to limit money supply growth, the reserve requirements were reduced and ultimately eliminated with apparently little debate or fanfare. The gold standard as it existed after 1933 was thus fundamentally different from its precursor, and foreshadowed the Bretton Woods gold standard that was to replace it after World War II.

In addition to marking a fundamental shift in the degree to which gold served as a constraint on domestic monetary policy, the revaluation of gold in 1934 left the U.S. Treasury with a capital gain of some \$2.8 billion on its gold holdings. Under authority conveyed by the Gold Reserve Act of 1934, the Treasury used \$2 billion of its windfall to establish the Exchange Stabilization Fund: "For the purpose of stabilizing the exchange value of the dollar, the Secretary of the Treasury...is authorized...to deal in gold and foreign exchange and such other instruments of credit and securities as he may deem necessary."

Although the operations of the Exchange Stabilization Fund during the 1930s had little effect on the quantity or growth of bank reserves, the size and open-ended authority of the Fund was widely viewed as a threat to the Federal Reserve System and its ability to effect monetary policy. For example, Roy Young, then Governor of the Federal Reserve Bank of Boston, argued that the Gold Reserve Act "gives the Secretary of the Treasury such powers, of a permanent nature, that he could nullify anything we [the Federal Reserve] could do" (quoted by Johnson 1939, p. 36). *The Commercial and Financial Chronicle* (January 20, 1934, p. 367) had a similar reaction: "The Reserve authorities have been reduced to shadowy nonentities, the Federal Reserve System having become simply an adjunct of the United States Treasury and the Federal Government, to do what they are told to do."

In addition to the Exchange Stabilization Fund, additional authorities granted the President and Treasury Secretary included the right to “request” the Federal Reserve to use open-market purchases to increase bank reserves by up to \$3 billion, and, if the Fed refused, to issue a commensurate amount of fiat currency. This power was granted by the Thomas Amendment to the Agricultural Adjustment Act of 1933, which, along with the Silver Purchase Act of 1934, also authorized the purchase of silver and permitted the President to devalue the silver dollar. Between 1933 and 1938, the Treasury purchased 1.8 billion ounces of silver, thereby increasing bank reserves by \$1 billion (some 20 percent of the total increase in reserves during the period). Had the President chosen to devalue the dollar in terms of silver, the Treasury would have reaped a \$2.2 billion windfall on its silver holdings (Johnson 1939, pp. 195-98). In summarizing the various new authorities given the Administration, Johnson (1939, p. 202) concludes, “The President could double or triple bank reserves, had complete discretion over the gold value--and consequently the foreign exchange value--of the dollar, and could establish bimetallism by proclamation, in other words, he could completely refashion the monetary system of the country, and the sole criteria required were his own subjective evaluations of the situation.”

Organizational changes to the Federal Reserve System may have also contributed to the Fed’s willingness to accept the Administration’s desired monetary policy. The authors of the Federal Reserve Act agreed that the Federal Reserve System should not be a “central bank” on the European model, but a federal system of semi-autonomous Reserve Banks with an overseeing board. Dissatisfaction with the subsequent performance of the Federal Reserve, both during the 1920s and during 1929-33, led to reforms that enhanced the authority of the Federal Reserve Board at the expense of the Reserve Banks. Marriner Eccles accepted the chairmanship of the Federal Reserve Board in 1933 with the understanding that he would have freedom to redesign the Federal Reserve System. His reforms included limits on the power of the Federal

Reserve Bank of New York, which he viewed as an instrument of the private interests of New York bankers, and measures to ensure oversight and coordination of the activities of the regional Reserve Banks in pursuit of the national interest (Eccles 1966, pp. 170-72).

Under Eccles' plan, which was largely adopted by the Banking Act of 1935, the Board of Governors was given substantial control over open-market operations and Federal Reserve Bank discount rates. The Federal Open Market Committee (FOMC) was reconstituted to include all seven members of the Board of Governors and just five of the twelve Reserve Bank presidents.¹⁰ The legislation thereby increased the authority and stature of the Federal Reserve officials located in Washington and appointed by the President. On the other hand, it also sought to limit the influence of the President by removing the Secretary of the Treasury and Comptroller of the Currency as *ex officio* FOMC members. With his reforms, Eccles intended that monetary policy making would be made by professionals whose allegiance was solely to the national interest. These changes, however, increased political pressures on the Fed at the same time that establishment of the Exchange Stabilization Fund and other measures increased the Administration's power to conduct monetary policy. Consequently, these reforms shifted power away from the Fed toward the Treasury, and promoted an inflation bias in monetary policy.

The Post-War Monetary Regime

From 1933 to 1951, the Federal Reserve System was largely subordinate to the Treasury in the conduct of monetary policy. The Fed increased reserve requirements in 1936 and 1937 to absorb some of the large volume of excess reserves that member banks had built-up. A subsequent increase in government security yields angered Treasury officials, however, and the

¹⁰ The Banking Act of 1935 also changed the titles of the chief executive officers of the Federal Reserve Banks from the more prestigious "Governor" to "President," while discontinuing the Federal Reserve Board in favor of the Board of Governors, whose members all held the title "Governor." The Board of Governors was also authorized to approve the appointments of Federal Reserve Bank presidents and first vice presidents, and to generally supervise Reserve Bank operations.

Fed was forced to make open-market purchases and eventually reverse some of the change in reserve requirements.

During World War II, the Fed agreed to prevent government security yields from rising above predetermined levels. The Fed remained an instrument of debt management until 1951, when rising inflation caused Fed officials to argue for an independent monetary policy. Negotiations between the Fed and Treasury produced the Accord of March 1951, in which the Treasury agreed that the prices of government securities should be permitted to find their market levels and the Fed agreed to be mindful of Treasury debt financing in carrying out its monetary policies. Tacitly, the Fed accepted stability of government securities prices as an objective of monetary policy. In particular, the Fed followed a policy known as “even keel” in which it limited fluctuations in Treasury bill yields around Treasury issuing dates.

The Bretton Woods agreements of 1944 established the international monetary regime under which the Fed operated in the post-war era.¹¹ From the end of World War II through 1958, international trade and capital movements took place to the extent permitted by exchange and capital controls, with international payments settled by means of bilateral agreements among countries. Early on, European countries ran large current account deficits and the world suffered from a “dollar shortage.” American economic strength and stability, along with the Marshall Plan and other cooperative efforts, caused the dollar to emerge as the key currency of the international payments system. As the 1950s progressed, Europe strengthened economically and several countries ran substantial current account surpluses. The main western European currencies became convertible into dollars for current account transactions in 1959 (various capital controls remained). The United States, in turn, maintained convertibility of the dollar into gold at the fixed price of \$35 per ounce. Bretton Woods was thus a gold-exchange standard,

¹¹ See Bordo (1993) or Solomon (1977) for a history of the Bretton Woods System, and Meltzer (1991) for more specific analysis of U.S. economic policy under Bretton Woods.

as its interwar predecessor had been. However, the mechanism of dollar convertibility under Bretton Woods was fundamentally different from the mechanism of the pre-Great Depression gold standard, and the new mechanism explains how the United States could conduct an inflationary monetary policy while maintaining a fixed exchange rate between the dollar and gold.

Unlike the gold standard as it existed before 1933, under the Bretton Woods System, the balance of payments could exert monetary discipline only to the extent permitted by central banks themselves. This mechanism reflected a fundamental shift in ideology, from one that saw maintaining gold convertibility as paramount for long-run prosperity, to an ideology that viewed fixed exchange rates and gold convertibility as desirable, but not so important as to sacrifice short-run economic stability in defense of the international system. Discretionary monetary policy -- "managed money" -- was permitted under Bretton Woods to a degree never before achieved under a gold standard.¹²

Under Bretton Woods, American balance of payments deficits (surpluses) would be reflected in rising (falling) foreign central bank holdings of U.S. dollars unless foreign central banks and the United States exchanged dollars for gold. Although foreign central banks could enforce monetary discipline on the United States, in practice they refrained from doing so until 1965, when the French began large-scale conversions of dollars into gold in the face of large and persisting American payments deficits. Throughout the 1960s, dollars held outside of the United States increased rapidly, while American gold reserves dwindled (see Figure 1).¹³ The United

¹² Redish (1993) argues that Bretton Woods represented just one of a series of steps away from a gold standard operated solely by private markets, with little or no government interference, to a fiat monetary regime. As noted above, under the interwar gold-exchange standard the Federal Reserve (and other central banks) sterilized gold flows and used open-market operations and discount rate policy to manipulate gold flows.

¹³ The data sources for Figure 1 are *The Role of Gold in the Domestic and International Monetary Systems: Report to the Congress of the Commission on the Role of Gold in the Domestic and International Monetary Systems*, Volume 1, Table SC-10, column 3 (U.S. monetary gold stock) and Table SC-8, columns 1 and 2

States' commitment to gold convertibility thus became less and less credible. Numerous remedies other than a substantial tightening of monetary policy were attempted to improve the U.S. payments deficit. But, without addressing the fundamental problem, the Bretton Woods System was destined to collapse, which it did when President Nixon closed the gold window on August 15, 1971.¹⁴

American Inflation

The Bretton Woods System collapsed because the dollar shortage of the 1950s was replaced by a dollar glut in the 1960s. The Federal Reserve pursued a monetary policy that contained inflation throughout much of the decade following the Fed-Treasury Accord of March 1951. As illustrated in Figure 2, during the 1950s, the growth rate of M1 (which consists mainly of commercial bank demand deposits and currency held by the public) generally moved opposite to the rate of inflation (as measured here by the Consumer Price Index).¹⁵ Inflation control was not the sole objective of monetary policy during the 1950s, but did generally coincide with the Fed's other objectives of limiting fluctuations in national output and employment and preserving stability of the government securities market.

The money supply growth rate began to accelerate in the early 1960s and, by the mid-1960s, inflation had also begun to rise (Figure 2). The desires of Fed officials to promote full employment and to stabilize the yields on government securities explain the initial acceleration of money growth. Fed officials remained committed to controlling inflation, however, and the accelerating inflation rate of the 1960s did not reflect a substantial change in the taste for inflation among Fed officials. Rather, the Fed stumbled into an inflationary policy as much

(world monetary gold stock), and International Monetary Fund, *International Financial Statistics Supplement*, 1972, pp. 2-3, rows 4 and 4a (U.S. external liabilities).

¹⁴ A system of fixed exchange rates was imposed by the Smithsonian Agreement in 1972, but this system collapsed in 1973 and the dollar has since floated. Since my interest here concerns the end of dollar convertibility into gold, I treat August 15, 1971 as the date at which the Bretton Woods regime ended.

¹⁵ All series in Figures 2-4 are smoothed using a centered 13-month moving average filter.

because of flaws in its operating strategy as because of a desire to pursue objectives other than inflation control.

The operating framework of Federal Reserve policy in the 1950s and 1960s was much like that which Benjamin Strong had described in the 1920s. That strategy was flawed because it permitted destabilizing fluctuations in the supply of money. I believe this helps explain why Fed officials were able to convince themselves that their policies were promoting recovery from the Depression when in fact they were permitting a contractionary decline in the money stock (Wheelock, 1991). Similarly, the Fed's use of this operating strategy in the 1960s explains how Fed officials could argue that policy was "leaning against the wind" of inflation despite accelerating money supply growth.

The Fed's interwar-era policy strategy, and its post-Accord reincarnation, focused on the levels of market interest rates and the net borrowed, or "free," reserves of commercial banks. Fed officials engaged in open-market operations to alter the level of free reserves, which equals the difference between reserves that banks hold in excess of legal requirements and reserves borrowed from the Fed's discount window. Through free reserves, the Fed sought to manipulate money market interest rates (Treasury bill yields in the early 1960s, the federal funds rate later on). Open-market purchases (sales) tend to add to (subtract from) the stock of free reserves, and an increase (decrease) in free reserves was viewed as an easing (tightening) of policy. The level of free reserves is plotted alongside the rate of inflation for the period from the Accord (March 1951) through December 1971 in Figure 3. The Fed tended to reduce free reserves to combat increases in inflation, and increase free reserves when inflation was declining. Thus Fed officials sought to contract the level of free reserves in response to the generally rising rate of inflation of the 1960s. Because market interest rates tended to rise, Fed officials were further convinced that policy was tight.

Many economists, especially monetarists, criticized the Fed's policy strategy because of its tendency to exacerbate swings in money supply growth.¹⁶ As illustrated in Figure 4, money supply growth accelerated throughout much of the 1960s, even as Fed officials ratcheted down the level of free reserves. The evidence therefore does *not* indicate that Fed officials lacked concern for inflation or failed to attempt to check the rising price level. Nevertheless, the Fed's policy permitted the money supply to rise at an inflationary rate.

The Federal Reserve was not powerless to halt the rising inflation, and Fed officials understood that inflation was contributing to the American balance of payments deficit and threatening the gold standard. Still, under the Bretton Woods System, U.S. policy makers did not have to make price stability the sole, or even primary, objective of monetary policy as long as other countries were willing to hold the growing supply of dollars available on world markets. Foreign central banks did forbear for a time, particularly since the dollar was the key currency of the international payments system. This gave the United States breathing room -- not, as it turned out, to correct its balance of payments deficit, but to pursue other policy goals while inflation worsened and the collapse of Bretton Woods became inevitable.

The Monetary Policy Legacy of the Great Depression

The Federal Reserve stumbled into an inflationary monetary policy in the early 1960s because, absent discipline exerted by balance of payments deficits, policy makers were able to pursue other objectives, namely employment growth and low interest rates on government debt. With its focus on free reserves and interest rates, the Fed's operating framework tended to cause money supply growth to accelerate at an inflationary pace as economic activity expanded. Because the Fed had used much the same operating framework before the Depression, this cause of inflationary policy during the 1960s was not a result of the Depression having occurred.

¹⁶ Meigs (1962) and Brunner and Meltzer (1964) were among the earliest critics of the Fed's free reserves strategy.

Keynesian Macroeconomics and Monetary Policy Making

Much of the “inflationary bias” in monetary policy during the 1960s can, however, be attributed to changed institutions and economic policy ideology caused by the Great Depression. Keynesian macroeconomics and its influence on economic policy making was an important ideological product of the Great Depression. The influence of Keynesian economic ideas on policy making during the 1960s has received considerable attention (e.g., DeLong, 1995), with Lucas (1980, p. 704) writing that one of the “main features of the Keynesian Revolution and the neoclassical synthesis into which it evolved in the United States ... [was] the onset of the Great Depression and the consequent shift of attention from explaining a recurrent pattern of ups and downs to explaining an economy apparently stuck in an interminable down.”

Keynesian-oriented policy makers believed that monetary and fiscal policy could reliably increase aggregate demand and employment along a stable Phillips curve. Central to discussions of monetary policy among Federal Reserve officials was the perceived tradeoff of unemployment and inflation. As Federal Reserve Governor Sherman Maisel explained it, “There is a trade-off between idle men and a more stable value for the dollar. A conscious decision must be made as to how much unemployment and loss of output must be made in order to get smaller price rises” (Maisel, 1973, p. 14). Maisel added “that at least some of the Committee’s differences on policy reflected differences in basic value judgments regarding the relative importance of various conflicting goals -- for example, regarding the appropriate trade-off between employment and price stability” (FOMC *Minutes*, October 20, 1970, p. 41).¹⁷

Maisel’s views were widely shared among his colleagues, including Arthur Burns, who became Chairman of the Federal Reserve Board of Governors in 1970. Burns consistently was

¹⁷ The *Minutes of the Federal Open Market Committee* are not verbatim transcriptions of FOMC meetings. They do appear to give a reasonably full account of the discussion, however, and attribute comments to individuals by name.

among those favoring an easy monetary policy in 1970 and 1971, and often cited the consequences of monetary policy for employment. At an FOMC meeting on March 9, 1971, for example, Maisel read a *New York Times* editorial to the effect that “anyone who was a party to the use of unemployment to combat inflation had a moral duty to lead the way, either by relinquishing his job or by contributing his income to the support of the involuntarily unemployed.” Burns replied that “he wanted to endorse Mr. Maisel’s ... comments,” that the ongoing economic recovery was “fragile” and that “rising [interest] rates could prove fatal to the prospects for recovery” (FOMC *Minutes*, March 9, 1971, pp. 44-49).¹⁸

To avoid confronting the inflation-unemployment tradeoff, Burns, like many of his Fed colleagues, advocated wage and price controls so that monetary policy could focus on fighting unemployment. Moreover, Burns frequently argued that inflation associated with increases in wages and other production costs, as opposed to excessive monetary growth, should not be fought with tight monetary policy. At an FOMC meeting on June 8, 1971, for example, he argued that “Monetary policy could do very little to arrest an inflation that rested so heavily on wage-cost pressures.... A much higher rate of unemployment produced by monetary policy would not moderate such pressures appreciably.... He intended to continue to press [the Administration] hard for an effective incomes policy” (FOMC *Minutes*, June 8, 1971, p. 51). Burns and other Fed officials frequently argued that monetary policy could not effectively control inflation, but that fiscal policy and wage and price controls could better accomplish the task. Monetary policy, on the other hand, should prevent interest rates from rising and choking off economic growth. In arguing against a policy tightening in April 1971, Burns contended that any increase in long-term interest rates would slow the economy “and the nation might then enter

¹⁸ See Wells (1994) for analysis of Burns’ views.

on a long period of economic stagnation. The Federal Reserve could not permit that development” (FOMC *Minutes*, April 6, 1971, p. 56).

During the 1960s and 1970s, Fed officials believed that policy actions to push down interest rates could promote output and employment growth. Such action would not necessarily cause inflation, they argued, and if it did, inflation was an acceptable cost of high employment. Moreover, wage and price controls could limit inflation. It is my view that Federal Reserve policy makers were no less concerned about the unemployed and the prospects for economic growth during the Great Depression. Their views about how monetary policy could be used to foster growth, however, were almost diametrically opposed to those of Fed officials in the 1960s and early 1970s.

In the Depression, a common view among Fed officials was that pumping liquidity into the economy would only prolong the Depression by delaying the adjustments to wages and prices that they saw as necessary for a recovery to begin. One example of this point of view is evident in the comments of William McChesney Martin, Governor of the Federal Reserve Bank of St. Louis during the Depression and father of William McChesney Martin, Jr., the Federal Reserve Board’s Chairman from 1951 to 1970. In early 1930, Martin argued,

I cannot see how the situation can be benefited by putting fifty millions of dollars, or, in fact, any other amount, into the general market at this time.... The reason that more money is not being used is because it is not needed, and when there is already sufficient money to meet the expressed needs, it seems to me unwise artificially to add to the amount already sufficient ... because based on a redundancy of money rather than on actual needs may be hazardous. (quoted by Chandler, 1971, p. 142)

A similar view was expressed by George Norris, Governor of the Federal Reserve Bank of Philadelphia:

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.... We have been putting out credit in a period of depression, when it was not wanted and could not be used. (quoted by Chandler, 1971, p. 137).

The Governor of the Federal Reserve Bank of San Francisco, John Calkins, also argued against trying to stimulate the economy by lowering interest rates: "With credit cheap and redundant we do not believe that business recovery will be accelerated by making credit cheaper and more redundant" (quoted by Friedman and Schwartz, 1963, p. 372).

The views of Martin, Norris and Calkins were not atypical among Federal Reserve officials during the 1930s. Nor was it unusual for government officials outside of the Federal Reserve to hold similar views. Secretary of the Treasury Andrew Mellon, for example, believed that the best medicine for the Depression was to "Liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate ... purge the rottenness out of the system" (quoted by Eichengreen, 1992, p. 251). Such a prescription could hardly be called "Keynesian."

Political Pressures on the Fed

The macroeconomic model used by Federal Reserve officials during the 1960s and 1970s was quite different from that used in the early 1930s. So too was the extent to which the Federal Reserve was pressured by other government officials.

Although the Federal Reserve has never been a truly "independent" central bank, certain institutional changes occurring as a result of the Great Depression subjected the Fed to greater political pressure, while at the same time increasing the opportunity for the Fed to monetize fiscal deficits. Together these changes added an inflation bias to monetary policy.

The Glass-Steagall Act of 1932, as noted previously, permitted U.S. Government securities to serve as partial backing for Federal Reserve monetary liabilities. Thus monetization of fiscal deficits could occur even if the Fed held no excess gold or commercial paper reserves. In the 1930s, special authorities given by Congress to the President to fix the value of the dollar in terms of gold, to monetize silver, to buy and sell foreign exchange and even to order the Federal Reserve to make open-market purchases all weakened the Fed's ability to conduct an independent monetary policy. In addition, changes to the structure of the Federal Reserve

System itself increased the concentration of power within the Fed in the hands of government appointees located in Washington.

Although the Fed-Treasury Accord of 1951 returned a measure of independence to the Fed, the level and stability of government security yields remained a key focus of monetary policy. Part of the explanation for this focus may rest with the Korean and Vietnam Wars. The Fed had ensured plentiful and inexpensive funding for the Treasury during the two world wars, and the Fed may have sought to limit increases in government security yields during the Korean and Vietnam episodes out of a sense of patriotic duty.¹⁹ A byproduct of such a policy, of course, was a faster rate of increase in the supply of money.

New Deal changes to the Fed's internal structure may have also contributed toward its policy of limiting increases in interest rates. By reducing the role of Federal Reserve Bank presidents in favor of the Board of Governors, the Banking Act of 1935 subjected the Fed to greater political influence by concentrating power in the hands of Washington-based officials who are presidential appointees. Political influence on monetary policy has been the subject of extensive study (e.g., Wooley, 1984; Havrilesky, 1993), and a general conclusion seems to be that the short, finite horizon of political election cycles gives politicians an incentive to favor more expansionary monetary policies than does the public as a whole. To the extent that politicians are able to get the monetary policy they desire, the result is a higher long-run rate of inflation than would otherwise occur. Thus countries with less independent central banks tend to have higher inflation rates than countries with relatively independent central banks.

An infamous example of Federal Reserve acquiescence to political pressure came in 1972 when at the request of the Administration Arthur Burns was alleged to have increased the money supply growth rate to promote President Nixon's reelection (see Wells, 1994 for

¹⁹ Evidence of this is given in Calomiris and Wheelock (1997).

discussion). Whether or not such overt pressure was exerted, it is clear that under both Burns and Martin political considerations influenced the setting of monetary policy. With the possible exception of Nixon's reelection, such pressure was not overtly connected to elections, but rather to consideration of the Administration's or Congress' policy preferences. To the extent such considerations influenced policy outcomes, they would almost always have done so on the side of promoting inflation.²⁰

Monetary Policy and the Balance of Payments

The Fed's operating strategy, desire to promote high employment, and pressures on the Fed to keep interest rates low all gave monetary policy a bias toward inflation. By themselves, however, they could not have resulted in a sustained inflation without an accommodating international monetary regime. Under the classical gold standard, for example, an inflationary monetary policy could not have been sustained. But, under Bretton Woods, sustained inflation was possible as long as foreign central banks were willing to hold the dollars they accumulated as a result of the American payments deficit, rather than demand payment in gold for those dollars.

Although the Bretton Woods System provided some insulation for discretionary monetary policy, Federal Reserve officials understood that the United States could not run a balance of payments deficit indefinitely. But, Fed officials were also wary of combating a balance of payments deficit with policies that might interfere with other goals. On one occasion,

²⁰ Burns had a close relationship with Nixon and clearly understood the monetary policy desired by the Administration. Two examples of the interjection of political considerations into monetary policy discussions occurred at a meeting of the FOMC in October 1970 and January 1971. On the first occasion, Burns suggested that committee members consider the "judgments of members of Congress, senior officials of the Administration, and others" when attempting to determine how high they were willing to let the unemployment rate rise in fighting inflation (FOMC *Minutes*, October 20, 1970, p. 41). Three meetings later, Burns told the committee that "The Administration's confidence in the System was weakening as a result of the shortfalls that had occurred in the rates of money growth.... The credibility of the Federal Reserve would be greatly strengthened if it became apparent that the Committee was seeking to make up the ... shortfall" (FOMC *Minutes*, January 12, 1971, p. 37). See Calomiris and Wheelock (1997) for examples of political pressure on the Fed when William Martin was Fed chairman.

President Alfred Hayes of the Federal Reserve Bank of New York, argued that “I would think it unwise to let the gold outflow itself affect our monetary policy directly, i.e., in the way of using a tightening move directed specifically toward stemming the flow and unrelated to domestic economic developments” (FOMC *Minutes*, November 10, 1958, p. 14-15). Another time, a Reserve Bank president expressed concern about the balance of payments deficit, but was reluctant to advocate a tighter policy for fear of disrupting the market for government securities: “Generally, he felt that the course of monetary policy should be moving toward a more restrictive posture. At the same time, he was quite concerned about the rate picture in the government securities market and the problems facing the Treasury in the future” (FOMC *Minutes*, May 5, 1959, p. 34). This reluctance to face squarely gold outflows and a balance of payments deficit stands in marked contrast to the Fed’s reaction to gold outflows in 1931. At that time, Fed officials agreed that maintaining convertibility of the dollar into gold at a constant price was fundamental to long-run economic stability, and they were willing to tighten monetary policy in the middle of a depression to preserve the international monetary regime. By contrast, in the 1950s and 1960s, Fed officials viewed the balance of payments with concern, but were hesitant to make it the sole, or even the primary, focus of policy. This change in philosophy, attaching less importance to the gold standard rule and more to discretionary policy was an important legacy of the Great Depression.

Although Fed officials were unwilling to tighten sufficiently to arrest the balance of payments deficit, they did see the deficit as influencing their ability to promote domestic economic activity. Chairman Martin, for example, argued that “If the Federal Reserve got the reputation of following a cheap money policy just for the sake of doing so, people abroad would be encouraged to think the System was not concerned with the balance of payments or the soundness of the dollar” (FOMC *Minutes*, December 13, 1960, p. 40). Martin also argued that

“The balance of payments problem ... was a vital factor in the unemployment situation. Foreign capital was finding the United States less and less attractive, there were pressures for movement of capital abroad, and this was having a deleterious effect on employment in this country”

(FOMC *Minutes*, March 6, 1962, p. 56).

Fed officials also understood that the balance of payments deficit stemmed from differences in the macroeconomic policies of different countries. At a FOMC meeting in 1959, a Fed staff member reported that “The net result of attempts in this country to validate our wage and price policies through monetary expansion could succeed only if we could inflate the whole world.” The staff member went on to argue that expansionary monetary and fiscal policy could “price United States’ goods out of world markets” because officials of other countries, notably Germany and The Netherlands, surely would not permit inflation in their domestic prices

(FOMC *Minutes*, May 5, 1959, p. 14). The same official, however, was unwilling to blame monetary policy alone for the balance of payments deficit. In arguing that gold outflows “call for a generally restrictive credit policy ... more effective corrections ... would be moves to reduce the budgetary deficit and the checking of price rises due to wage and other cost increases”

(FOMC *Minutes*, October 21, 1958).

The Fed’s unwillingness to tighten sufficiently to stem the balance of payments deficit led it to consider other actions it might take. One of the earliest of the policies intended to restore external balance was "Operation Twist"--an attempt to raise short-term interest rates high enough to attract foreign capital, while keeping long-term interest rates low enough to favor domestic expansion.

Other policies intended to correct international payments imbalances without slowing domestic activity included agreements with foreign central banks to forebear from demanding gold, intervention in foreign exchange markets, the issuance of foreign currency-denominated U.S. bonds ("Roosa bonds"), requests of early repayment by foreign governments of debts to the

U.S. Government, the removal of interest rate ceilings on U.S. bank time deposits, capital outflow constraints imposed in the United States, and changes in U.S. tax treatment of foreign earnings. Balance of payments deficits continued, however, and the long-term feasibility of the existing dollar gold-exchange standard grew increasingly doubtful.

The Collapse of Bretton Woods

When Arthur Burns took over as chairman of the Fed's Board of Governors in early 1970, the U.S. economy was sliding toward a recession, the inflation rate stood at 6.5 percent (first quarter average annualized rate of CPI inflation), and the U.S. balance of payments had been in deficit nearly every year since the late 1950s. At his first meeting, Burns announced that "in his judgment, economic developments had reached a point at which a rethinking of monetary policy was in order" (FOMC *Minutes*, February 10, 1970, p. 3). It quickly became apparent that Burns would make avoidance of a recession his first priority. Against three dissents, the Federal Open Market Committee voted to ease monetary policy at that meeting. One of the dissenting votes came from Andrew Brimmer, who expressed the hope that "the Committee would not lose sight of the highly unfavorable outlook for the balance of payments and would give the payments balance somewhat greater than customary weight in formulating policy over the near term" (ibid, p. 59).

Federal Open Market Committee meetings usually begin with analysis of economic conditions by Fed staff members, and during 1970 and 1971, the staff frequently expressed pessimism about the balance of payments deficit. Following the staff reports, there usually was a report from a Fed governor, often Dewey Daane, who attended a regular meeting of central bank officials in Europe. The U.S. payments deficit was a principal topic at those meetings, with the Europeans frequently questioning American resolve to control inflation (see, e.g., FOMC *Minutes*, June 23, 1970). The balance of payments seems to have had limited impact on FOMC

deliberations, however, because after hearing the summary of the European meeting, the Committee would review domestic economic conditions and discuss the policy directive, usually with little or no reference to the balance of payments.

At the FOMC meeting of October 20, 1970, the Fed staff gave a particularly lengthy and pessimistic report on the balance of payment. Following the report, Burns "said he could add one word of reassurance. Work on the balance of payments problem was going forward actively, and he was confident that adequate measures for grappling with the problem could be devised" (FOMC *Minutes*, October 20, 1970, p. 21). From this comment, it is clear that Burns viewed the balance of payments deficit as a problem that could be controlled effectively without monetary policy action. Moreover, the comment reflects the fact that the Treasury, especially Undersecretary Paul Volker, was taking the lead in devising America's international economic policy.

Despite the seeming lack of influence of the balance of payments deficit on Federal Reserve policy, some of the Fed's staff, as well as the occasional governor, warned about the worsening payments deficit. At an FOMC meeting on June 23, 1970, the first vice president of the New York Fed argued that "A convincing and sustained attack on domestic inflation remains essential for improving our balance of payments and strengthening confidence in the dollar" (FOMC *Minutes*, June 23, 1970, p. 57). On another occasion, Alfred Hayes, President of the New York Fed noted that "a stiff price is being paid for the easing of money market conditions in the United States.... International conditions underline the need for giving high priority to the inflation problem" (FOMC *Minutes*, September 15, 1970, pp. 43-44). But, Governor Maisel replied that

It would be improper to assume that balance of payments considerations should be a constraint on [policy]. If the balance of payments remained unsatisfactory with demand still far below normal, that would appear to be an indication of basic structural problems in the balance of payments sphere. The Committee should be working to correct those structural imbalances rather than assuming a

posture which traded off losses of income, output, and jobs in an attempt to offset basic structural defects in the balance of payments sphere. (ibid, p. 46)

Arthur Burns added that “He believed that balance of payments considerations should not prevent the Committee from taking the policy actions it felt required by the domestic economy” (ibid, p. 65). Later in the same meeting Burns advocated “special measures,” presumably capital controls or similar measures, to deal with the balance of payments deficit (ibid, p. 81). Burns reiterated this view on February 9, 1971: “Chairman Burns commented that while the System was faced with international as well as domestic problems, the latter were the more pressing. Moreover, special tools were available for dealing with the former” (FOMC *Minutes*, February 9, 1971, p. 92).

The balance of payments deficit grew increasingly worse in early 1971, and the Fed’s staff warnings became stronger. At the March FOMC meeting, a Fed staff member warned that “Sooner or later -- and he suspected that it would be sooner -- the central bank complaints now being voiced privately [about their build-up of dollar balances] would become known to the market, which might then decide to protect itself against the risk of a sudden break in the structure of exchange parities” (FOMC *Minutes*, March 9, 1971, p. 22). Another staff member reported that

1) the balance of payments deficit in the first two months of this year was enormous; [and] 2) the monetary aggregates have been growing very rapidly. What connects these two sets of facts is the very steep decline in short-term interest rates. It is not surprising, therefore, that the short-term capital outflow has been extremely large.... Considerable reluctance has been built up abroad, especially among financial officials in Europe, over what they regard as an undermining of their own monetary policies resulting from the massive short-term capital outflows from the United States and from the steep decline in short-term rates. The impression exists that ... the United States has completely ignored the effects its policies are having on the rest of the world. (ibid, pp. 28-29)

As the year 1971 progressed, the international payments crisis worsened. At the FOMC meeting of May 11, New York Fed president Hayes remarked that “We are ... in the midst of an

international monetary crisis.... A vote of no confidence in the dollar has been taken by several central banks” (FOMC *Minutes*, May 11, 1971, p. 53). Hayes also reported that the directors of the Federal Reserve Bank of New York had voted to increase the Bank’s discount rate by 1/2 point, the same step taken in response to a flight from the dollar in October 1931:

The directors felt in this major international crisis there was nothing the System could do that would be more useful and more timely than to give an overt signal of our concern and our willingness to move quickly toward narrowing the interest rate spread which was a major cause of the difficulty.... While recognizing the risks involved in a general increase in domestic interest rates, they felt that those risks were outweighed by international conditions. (ibid, pp. 55-56)

The Board of Governors turned down the New York Bank’s request for a discount rate increase, citing weakness in the domestic economy, the adverse effects of higher interest rates on the mortgage market and the market for state and local government debt, and the likely instability that a discount rate hike would cause in all financial markets. At the prior FOMC meeting, Burns seem to have predicted the New York Bank’s request for a discount rate increase when he relayed that “He had a vivid recollection of developments in 1931, when the Federal Reserve had raised its discount rate and acted to stiffen short-term rates because of a balance of payments problem, and an incipient [domestic economic] recovery had been cut off” (FOMC *Minutes*, April 6, 1971, p. 56). For Burns, the lesson of 1931 was to put the domestic economy first, ahead of the balance of payments and preservation of the gold standard.

Conclusion

The failures of economic policy, especially monetary policy, during the Great Depression produced several significant institutional and ideological changes in the monetary policy regime. Not surprisingly, because monetary policy was associated with deflation and contraction during 1929-33, the new regime included features that gave policy an inflation bias. Those features included both a new avenue for monetizing government debt and increased

political control of Federal Reserve policy. The Great Depression also put the new economics of Keynes, with its emphasis on government management of aggregate demand, into the professional and policy mainstream.

The most fundamental legacy of the Great Depression for monetary policy, however, concerned the international gold standard. Although governments interfered with the operation of the gold standard before 1933, and an unsettled question among economic historians is the extent to which a laissez-faire' gold standard would have proved more stable, a key lesson taken from the Great Depression was that the international monetary system required active management of government officials. Faith that the gold standard would ensure prosperity was destroyed, as was any notion that a disaster worse than the Depression would result if the gold standard was abandoned. Beginning in 1933, and continuing at least to the 1970s, the dominant ideology was that a gold standard and fixed exchange rates are desirable, but not worth sacrificing high employment to maintain. This change in attitude, and the institutional changes accompanying it, largely explains the inflationary monetary policy of the 1960s and early 1970s, as well as the decision to abandon gold and fixed exchange rates in 1971-73.

Since the 1970s, the pendulum has swung away from inflationary monetary policy somewhat. The costs of high inflation and the seeming inability of aggregate demand policy to maintain full employment helped promote New Classical macroeconomics and caused a rethinking of the appropriate goals of monetary policy among government officials. Several countries now specify inflation targets for their central banks, and have formally adopted price stability as the paramount objective for monetary policy. The institutional environment of monetary policy in the United States, however, has not changed since 1973, when fixed exchange rates were abandoned. The legacy of the Great Depression for monetary policy was in causing an institutional and ideological shift to a managed, discretionary monetary regime. The fundamentals of this regime remain in place today.

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Table 1

Selected Measures of Monetary Policy and Economic Activity

Year	Nominal GNP (1)	% change	Real GNP (2)	% change	CPI (3)	% change	M1 (4)	% change	M2 (5)	% change	Bank Failures (6)	Fail Deposits (7)	Interest Rate (8)	Real Rate (9)
1919	78.9		74.2		74.0		21390		30320		62			
1920	88.9	11.93	73.3	-1.22	85.7	14.68	23592	9.80	34708	13.52	167		5.42	-9.26
1921	74.0	-18.34	71.6	-2.35	76.4	-11.49	20955	-11.85	32212	-7.46	505	172188	4.83	16.32
1922	74.0	0.00	75.8	5.70	71.6	-6.49	21618	3.11	33646	4.36	366	91182	3.47	9.96
1923	86.1	15.14	85.8	12.39	72.9	1.80	22653	4.68	36411	7.90	646	149601	3.93	2.13
1924	87.6	1.73	88.4	2.99	73.1	0.27	23226	2.50	37992	4.25	775	210151	2.77	2.50
1925	91.3	4.14	90.5	2.35	75.0	2.57	25362	8.80	41691	9.29	618	167555	3.03	0.46
1926	97.7	6.78	96.4	6.32	75.6	0.80	26082	2.80	43539	4.34	976	260378	3.23	2.43
1927	96.3	-1.44	97.3	0.93	74.2	-1.87	25796	-1.10	44384	1.92	669	199329	3.10	4.97
1928	98.2	1.95	98.5	1.23	73.3	-1.22	25761	-0.14	45861	3.27	498	142386	3.97	5.19
1929	104.4	6.12	104.4	5.82	73.3	0.00	26189	1.65	45918	0.12	659	230643	4.42	4.42
1930	91.1	-13.63	95.1	-9.33	71.4	-2.63	25293	-3.48	45303	-1.35	1350	837096	2.23	4.86
1931	76.3	-17.73	89.5	-6.07	65.0	-9.39	23883	-5.74	42598	-6.16	2293	1690232	1.15	10.54
1932	58.5	-26.56	76.4	-15.83	58.4	-10.71	20449	-15.52	34480	-21.14	1453	706188	0.78	11.49
1933	56.0	-4.37	74.2	-2.92	55.3	-5.45	19232	-6.14	30087	-13.63	4000	3596698	0.26	5.71
1934	65.0	14.90	80.8	8.52	57.2	3.38	21068	9.12	33073	9.46	57	36937	0.26	-3.12
1935	72.5	10.92	91.4	12.33	58.7	2.59	25199	17.90	38049	14.02	34	10015	0.14	-2.45
1936	82.7	13.16	100.9	9.89	59.3	1.02	29630	16.20	43341	13.02	44	11306	0.14	-0.88
1937	90.8	9.34	109.1	7.81	61.4	3.48	30587	3.18	45195	4.19	59	19723	0.45	-3.03
1938	85.2	-6.37	103.2	-5.56	60.3	-1.81	29173	-4.73	44100	-2.45	54	10532	0.05	1.86
1939	91.1	6.70	111.0	7.29	59.4	-1.50	32586	11.06	47681	7.81	42	34998	0.02	1.52
1940	100.6	9.92	121.0	8.63	59.9	0.84	38763	17.36	54328	13.05	22	5943	0.01	-0.83
1941	125.8	22.35	138.7	13.65	62.9	4.89	45349	15.69	61296	12.07	8	3726	0.10	-4.79

- Notes: (1) \$ billions (Historical Statistics, F1)
(2) \$ billions, 1929 prices (Historical Statistics, F3)
(3) 1947-49=100 (Historical Statistics, E113)
(4) \$ millions, June figure (Friedman and Schwartz, 1963, Appendix A1)
(5) \$ millions, June figure (Friedman and Schwartz, 1963, Appendix A1)
(6) suspended banks (Board of Governors, 1943, p. 283)
(7) deposits in suspended banks (Board of Governors, 1943, p. 283)
(8) yearly average yield on 3-6 month Treasury notes and certificates (1919-33) and bills (1934-41)
(Board of Governors, 1943, p. 460)
(9) short-term Government yield less CPI inflation rate in same year
% change refers to year-to-year differences in the logs of the series to the left

Table 2

Monetary Policy During Three Recessions

<u>Month</u>	<u>IP</u>	<u>GS</u>	<u>DR</u>	<u>i</u>	<u>DL</u>	<u>DL(NYC)</u>
Jul 1929	124	147	5.0	6.00	1096	319
Oct 1929	118	154	6.0	6.25	885	74
Jan 1930	106	485	4.5	4.88	501	39
Apr 1930	104	530	3.5	3.88	231	17
Jul 1930	93	583	2.5	3.25	226	0
Oct 1930	88	602	2.5	3.00	196	6
Jan 1931	83	647	2.0	2.88	253	5
Apr 1931	88	600	2.0	2.38	155	0
Jul 1931	82	674	1.5	2.00	169	0
Oct 1931	73	733	3.5	3.13	614	74
Apr 1923	106	229	4.5	5.38	658	123
Jul 1923	104	97	4.5	5.13	834	143
Oct 1923	99	91	4.5	5.38	873	121
Jan 1924	100	118	4.5	4.88	574	85
Apr 1924	95	274	4.5	4.63	489	45
Jul 1924	84	467	3.5	3.50	315	13
Oct 1924	95	585	3.0	3.13	240	28
Jan 1925	105	464	3.0	3.63	275	32
Oct 1926	111	306	4.0	4.63	663	84
Jan 1927	107	310	4.0	4.25	481	76
Apr 1927	108	341	4.0	4.13	447	78
Jul 1927	106	381	4.0	4.25	454	59
Oct 1927	102	506	3.5	4.00	424	75
Jan 1928	107	512	3.5	4.00	465	94

Definitions:

IP: Index of Industrial Production (seasonally adjusted);

GS: Federal Reserve System's holdings of government securities (in \$ millions);

DR: discount rate of the Federal Reserve Bank of New York (in %);

i: commercial paper interest rate (in %);

DL: borrowed reserves of Fed member banks;

DL (NYC): borrowed reserves of New York City Fed member banks.

Data sources: Board of Governors (1937) pp. 175-77 for *IP*, and Board of Governors (1943) pp. 370-71 for *GS* and *DL*, pp. 440-41 for *DR*, pp. 450-51 for *i*, and p. 400 for *DL(NYC)*.

Table 3

Key Institutional Changes in Monetary Policy in the Early 1930s

- 1932 *Glass-Steagall Act* (February 27): temporarily made U.S. Government securities eligible collateral for Federal Reserve note issues, thereby expanding the Fed's ability to make open-market purchases (made permanent in 1933); also temporarily relaxed rules on discount-window lending (extended in 1933, made permanent in 1935).
- 1933 *Emergency Banking Act* (March 9): ratified suspension of the gold standard.
- Thomas Amendment to Agricultural Adjustment Act* (May 12): authorized the Fed to set reserve requirements; gave the president authority to require open-market purchases by the Federal Reserve, and to fix the weights of the gold and silver dollars.
- Banking Act of 1933* (June 16): enhanced Federal Reserve Board control of discount-window lending; technical adjustments to Federal Reserve System organization.
- 1934 *Gold Reserve Act* (January 30): authorized transfer of monetary gold stock to the U.S. Treasury; amended the president's authority to fix the dollar prices of gold and silver; and established the Exchange Stabilization Fund.
- Silver Purchase Act* (June 19): authorized the president to purchase and nationalize monetary silver; authorized limited Federal Reserve lending to industrial and commercial firms.
- 1935 *Banking Act of 1935* (August 23): reorganized Federal Reserve's Open Market Committee and otherwise enhanced the authority of the Board of Governors of the Federal Reserve System relative to the Federal Reserve Banks; extended Federal Reserve authority to adjust member bank reserve requirements.

Figure 1

Monetary Gold and Dollar Holdings

United States and the Rest of the World, 1945-1971

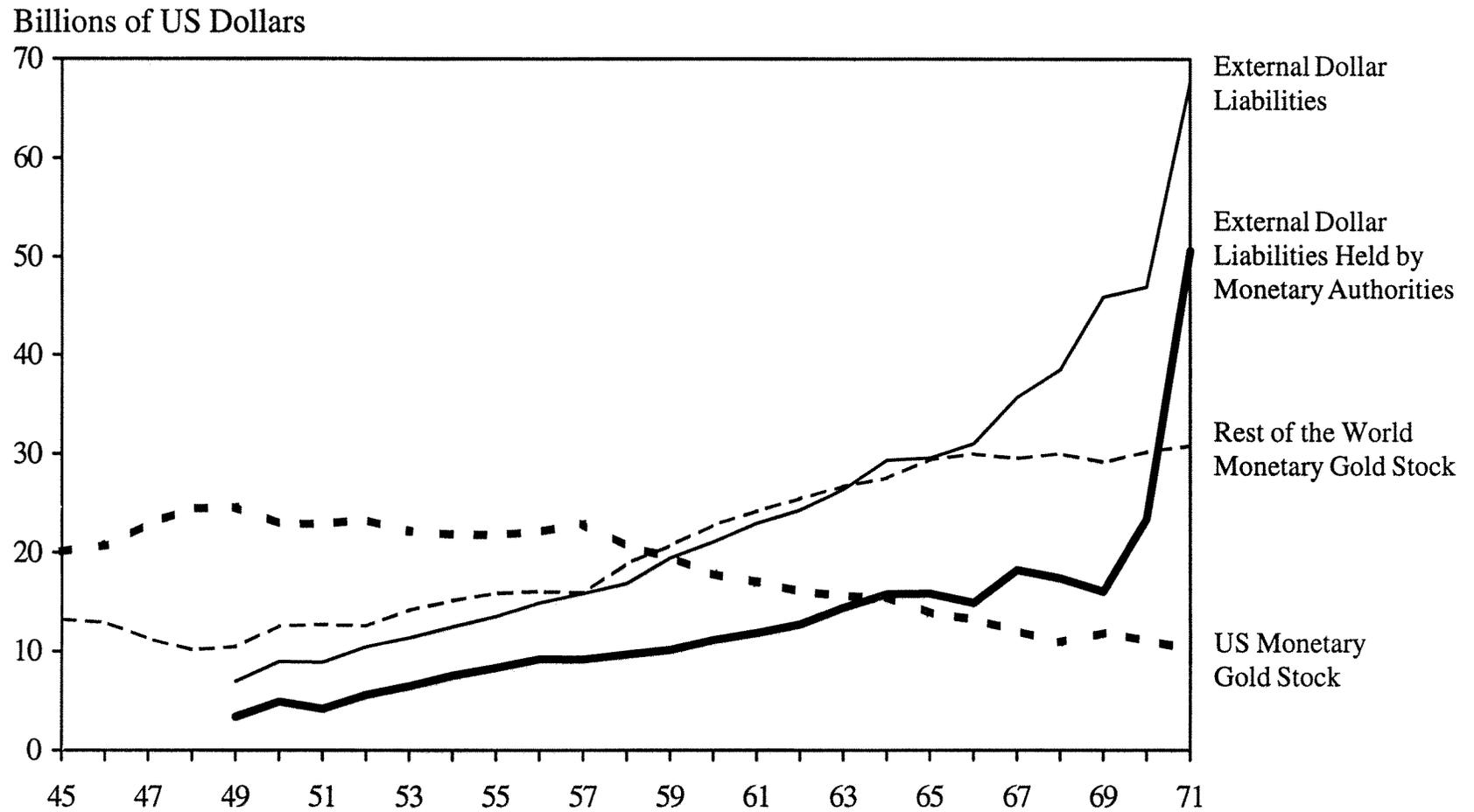


Figure 2

Money Supply Growth and Inflation

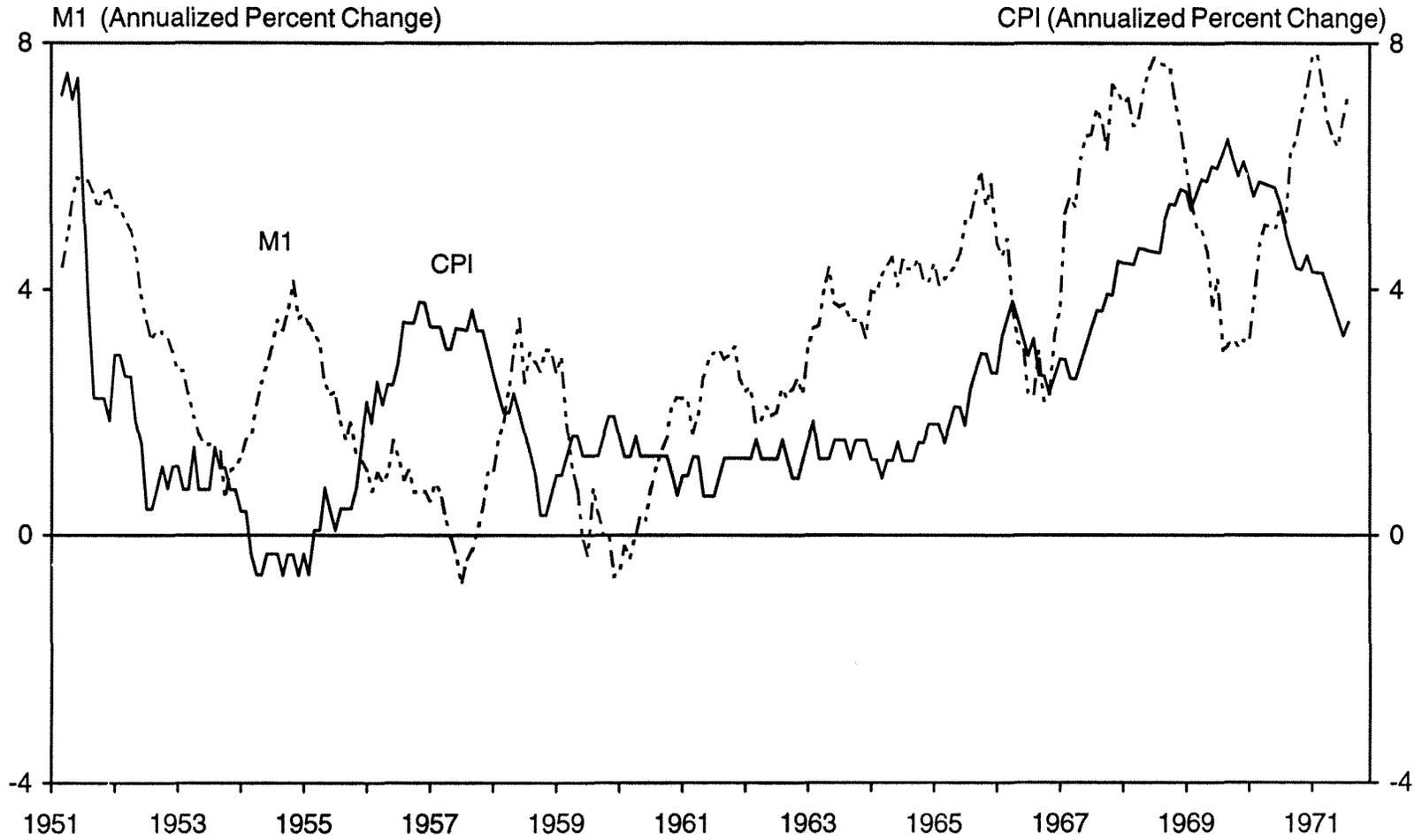


Figure 3

Free Reserves and Inflation

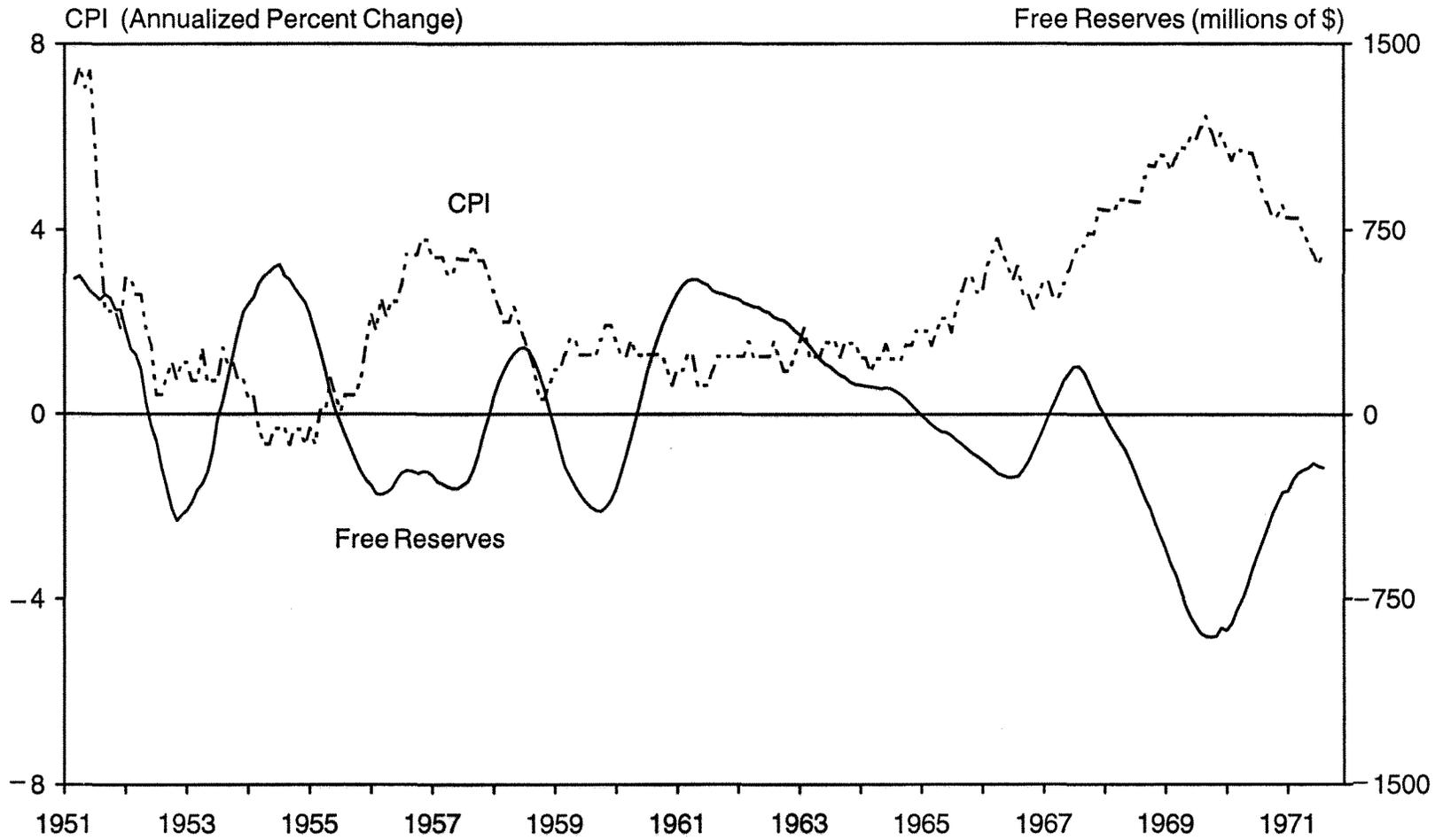


Figure 4

Free Reserves and Money Supply Growth

