



Origins of the Great Inflation

Allan H. Meltzer

The Great Inflation from 1965 to 1984 is the climactic monetary event of the last part of the 20th century. This paper analyzes why it started and why it continued for many years. Like others, it attributes the start of inflation to analytic errors, particularly the widespread acceptance of the simple Keynesian model with its implication that monetary and fiscal policy should be coordinated. In practice, that meant that the Federal Reserve financed a large part of the fiscal deficit. This paper gives a large role to political decisionmaking. Continuation of inflation depended on political choices, analytic errors, and the entrenched belief that inflation would continue.

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The Great Inflation of 1965 to the mid-1980s was the central monetary event of the latter half of the 20th century. Its economic cost was large. It destroyed the Bretton Woods system of fixed exchange rates, bankrupted much of the thrift industry, heavily taxed the U.S. capital stock, and arbitrarily redistributed income and wealth.

It was also a political event, as are all major policy issues. This paper argues that the Great Inflation cannot be understood fully without its political dimension. Political pressure to coordinate policy reinforced widespread beliefs that coordination of fiscal and monetary policies was desirable.

Inflation started in an economy close to price stability. The annual reported rate of consumer price increase rose from 1.07 percent in January 1965 to 13.70 percent in March 1980 before declining in 1983. Measured inflation only reached its local trough of 1.12 percent in December 1986.¹ This method of measuring inflation, though widely

used, is misleading. It mixes the effects of one-time price level changes (from currency devaluations, tariffs, and excises, but, in the 1970s, mainly supply shocks) with sustained rates of price change arising from the demand side. This is particularly important for the Great Inflation because the recorded peak rates of inflation reflect both the flawed or mistaken management of economic policies and the two large oil price shocks of the 1970s. Figure 1 shows the rise and fall of the reported inflation rate. Using a dummy variable to represent the oil price shock, we get the adjusted inflation series for 1979-80 shown in Figure 1.² This crude method attributes as much as half the reported peak inflation rate to a one-time price change. The adjustment suggests that the maintained rate of inflation never exceeded 8 to 10 percent.

An alternative measure, the rate of money wage growth, shows a maximum rate of increase

¹ Using the GNP/GDP deflator the quarterly dates are 1965:Q1, 1974:Q3, and 1986:Q1; the respective annualized quarterly data are 1.2 percent, 14.3 percent, and 0.7 percent.

² The dummy variable is included in a first-order autoregressive equation for consumer price index (CPI) inflation. The adjusted R² for the equation is 0.99, and the Durbin-Watson statistic is 1.59. The use of the dummy variable is a crude attempt to correct for the use of a fixed-weight price level following a large change in one of its components. Nominal wage growth does not show a comparable change.

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Figure 1

Year-on-Year Growth, Adjusted CPI, January 1965–July 1983

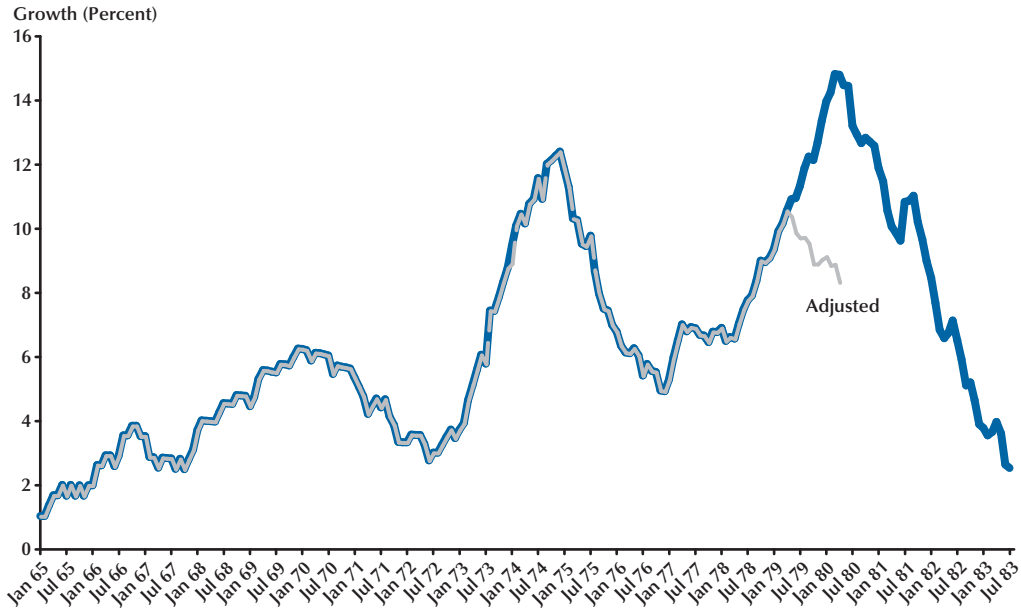
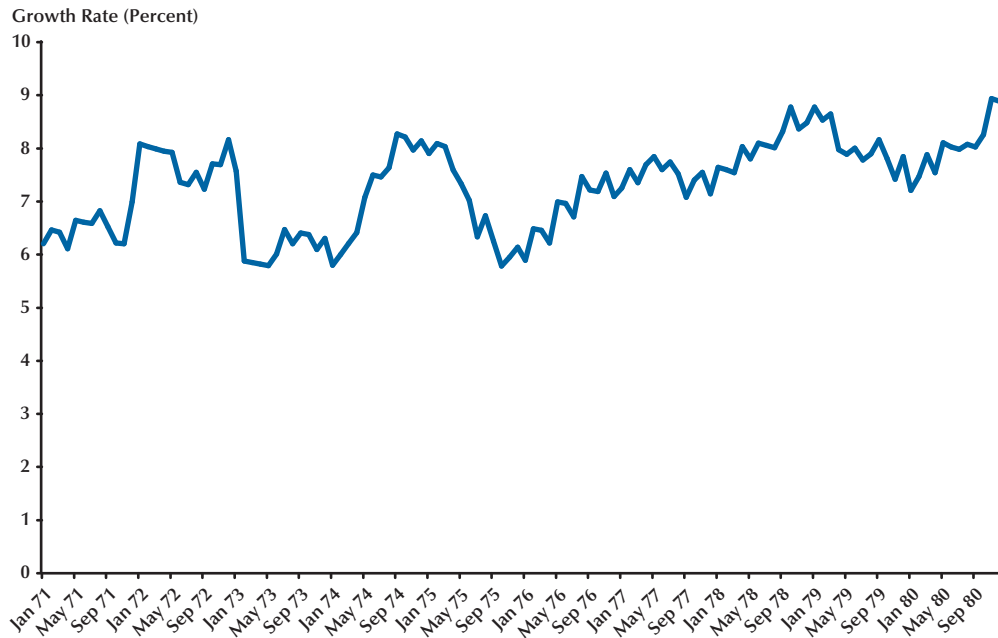


Figure 2

Average Annualized Hourly Earnings Growth, 12-Month Moving Average, 1971-80



of 9.3 percent in February 1981, when computed as a 12-month moving average of monthly data. This measure rises from 3.4 percent in early 1965 and does not return to this range until early in 1984. Figure 2 shows the wage data. They have a less-exaggerated response to the oil shocks of the 1970s and show considerable persistence.

The Great Inflation raises three main questions. Why did the inflation start? Why did it continue for nearly 20 years? Why did it end when it did rather than earlier or later? This paper answers the first, partially answers the second, and mainly neglects the third. A simple answer to the third question has a political dimension also: Policymakers stopped believing in and taking the policy actions that sustained inflation, and a new President supported and encouraged anti-inflation monetary policy. Making that case requires more attention to the details of policy actions in the 1980s than space permits. My research to date has not completed work on the 1970s and 1980s, so the evidence about persistence of inflation on which I rely must be extended to the late 1970s. Until that is done, my answer to the second question remains incomplete.³

During the inflation, I criticized policymakers for their errors, for failing to prevent inflation and failing to end it. Along with Karl Brunner and others on the Shadow Open Market Committee, I proposed alternative policy actions. This paper criticizes the policies also. It is important to note that I believe that much of what policymakers did, or failed to do, was close to the consensus of mainstream economists. And it was close also to popular beliefs about the importance of inflation as expressed in surveys and opinion polls taken at the time. That does not relieve policymakers of responsibility, but it puts their errors in the context in which they made them.

The Gallup organization repeatedly asked respondents to state what they regarded as the most important problem facing the country. Data from the beginning of 1970, when annual CPI inflation reached 6 percent, show that only 14 percent named inflation or “the high cost of

living” as one of the most important problems. The percentage rose and fell with reported inflation in the 1970s. It did not remain persistently above 50 percent and as high as 70 percent until 1980-81.

Politicians and policymakers are usually reluctant to take actions that are socially costly or unpopular. The Federal Reserve is an independent agency, not directly subject to control by the administration in office. The paper shows why the Federal Reserve hesitated to act, ultimately failed to prevent inflation from starting, and allowed it to continue. By the 1980s, the public and policymakers had learned that inflation was costly. Voters elected a President committed to reducing it, and the Federal Reserve had a Chairman who changed procedures and, most importantly, remained resolute in the commitment to reduce inflation.

PREVIOUS EXPLANATIONS

A large and growing literature addresses the causes of the Great Inflation. Both economists and political scientists have considered the issue. This section does not attempt a comprehensive survey, but it briefly summarizes some representative contributions and explains what I find supported by data or internal records.

Tufte (1978) offers a political interpretation. Based on work such as Kramer (1971) and many later studies, his work shows that election outcomes depend positively on employment, real disposable income, or similar variables and negatively on inflation. Quoting Nordhaus (1975, p. 185), Tufte argues that “politically determined policy choice will have lower unemployment and higher inflation than is optimal.” Barro and Gordon (1983) reached a similar conclusion in a different model.

One problem with these models is that they explain policy outcomes for a period restricted to the Great Inflation. They explain neither the period before nor the period after the Great Inflation. To explain observed changes in the inflation rate, the models require improbably large changes in the so-called natural rate of unemployment. They suggest why it can be politically costly

³ Much of the material comes from the second volume of my study *A History of the Federal Reserve* (Meltzer, forthcoming), which is now in process.

to reduce an inflation that has started, but they do not adequately explain either why inflation ended or why, once ended, it did not return. Second, the political models explain what politicians prefer, but they avoid an explanation of why an ostensibly independent Federal Reserve cooperated.

Economists' explanations fall into three groups. The first cites theoretical errors: Policymakers used the wrong model to choose actions or interpret data. The second cites misinformation: Policymakers believed that their actions would reduce or prevent inflation, but the data misled them. The third is that officials in the 1960s neglected or dismissed money growth as important for inflation. This is a special case of the first explanation that merits separate consideration. I discuss each in turn.

Theoretical Errors

There is little reason to doubt and abundant evidence to support the conclusion that in the late 1960s the Council of Economic Advisers under Gardner Ackley and the Board's staff under Daniel Brill relied heavily on a simple Keynesian model with a nonvertical, long-run Phillips curve. Romer and Romer (2002) develop this reasoning.⁴ Combining this model with a belief that, in James Tobin's familiar phrase—it takes many Harberger triangles to fill an Okun gap—we get a rationalization or defense of inflationary policies.⁵

Another explanation of this kind points to the misinterpretation of interest rates or neglect of the distinction between real and nominal interest rates. This was a long-standing Federal Reserve problem (Meltzer, 2003). According to Taylor (1999), Clarida, Galí, and Gertler (2000), and others, until 1981, the Federal Reserve did not increase the market interest rate enough in response to inflation to offset the negative effect of inflation

on (ex post) real interest rates and on expected future interest rates. Orphanides (2003) shows that, at the margin, the Federal Reserve's response was sufficient to compensate for inflation. It remains true, however, that ex post real short-term interest rates remained negative during much of the 1970s.⁶

Suppose we accept Taylor's interpretation and conclude that the Federal Reserve did not raise nominal interest rates enough. We are left with two questions. First, didn't the market recognize the error and raise (the more relevant) long-term interest rates and other asset prices? Second, then as now, the Federal Open Market Committee (FOMC) looked at many different series. They knew that inflation continued and rose at times to new levels. How could they fail to see (or learn) that their actions were inadequate to slow or stop inflation? The data in Figure 1, or similar data for the period, were available at every meeting.

I do not question the claim that the simple Keynesian model, such as is found in Ackley (1961), with a nonvertical long-run Phillips curve, misled policymakers in the 1960s by overstating the role of fiscal policy, especially temporary changes; understating the role of money growth; failing to distinguish between anticipated and unanticipated inflation and between the effects of temporary and permanent tax rate changes; and neglecting the role of inflationary anticipations on interest rates, wages, and prices. However, the Nixon administration economists did not share many of these beliefs. They accepted that the long-run Phillips curve was vertical, and they emphasized the importance of money growth for inflation. Nevertheless, under their guidance, inflation increased before the oil-price shock of 1973 and continued through their term in office.

⁴ Hargrove and Morley (1984) have interviews with Council chairmen in which they state their interpretations. Okun (1970) explains that he regarded Friedman's (1968) explanation of the vertical long-run Phillips curve of little practical relevance.

⁵ The argument is flawed. Tobin compares the one-time loss from unemployment (Okun gap) to the loss from nonindexed inflation (Harberger triangle). Losses from inflation continue as long as inflation continues. Fischer (1981) shows many ways inflation is costly that are not captured in the Harberger or Bailey triangle. See also Feldstein (1982) for effects on capital.

⁶ Recent papers compare two explanations of negative real short-term rates. One attributes the result to chance, principally unfavorable shocks (oil); the other cites policy errors (see Collard and Dellas, 2004, and Velde, 2004). These are not alternatives. Both could be and probably were relevant. One problem is that the bad luck mainly affected the price level, not the maintained inflation rate. A market that recognized temporary and permanent changes would have different responses of short- and long-term interest rates to such changes, hence different responses of economic activity. Between the end of December 1972 and December 1973, 3-month Treasury bill rates rose from 5.13 to 7.50 percent; 10-year constant maturity Treasury bonds rose only from 6.40 to 6.87 percent. This is one illustration of the difference between the two definitions of inflation.

Despite their beliefs about money and inflation, they urged faster money growth in 1970-72 and at other times.

At most, reliance on the simple Keynesian model is part of an explanation of the start of the inflation. There has to be more to the story, because it is the Federal Reserve, not the Council of Economic Advisers, that makes monetary policy. William McChesney Martin Jr. was Chairman of the Board of Governors at the start of the inflation and until 1970. Martin did not rely on explicit economic models, Keynesian or other.⁷ He said many times that he did not find economic models useful, and he gave most attention to market data and market participants, not economists. Martin made many speeches opposing inflation and pointing out its costs. As I note below, he did not welcome what happened during the last years of his management of the Federal Reserve, from 1965 to early 1970.

Gordon (1977, p. 276) concluded that his model based on a Phillips curve failed “to explain the increased variance of inflation during 1971-76 as compared to the pre-1971 period.” The model did better at explaining the cumulative change. Gordon concluded that the Phillips curve became steeper after 1971, but he offered no explanation of the change. The change in the estimated coefficients of his equations from estimates for earlier periods suggests that the underlying structure had changed. The likely reason was that the public had learned to expect inflation.⁸ A common finding at the time was that the trade-off between inflation and unemployment became steeper

(imposing a more inflationary cost of reducing unemployment) as time passed.

Misinformation

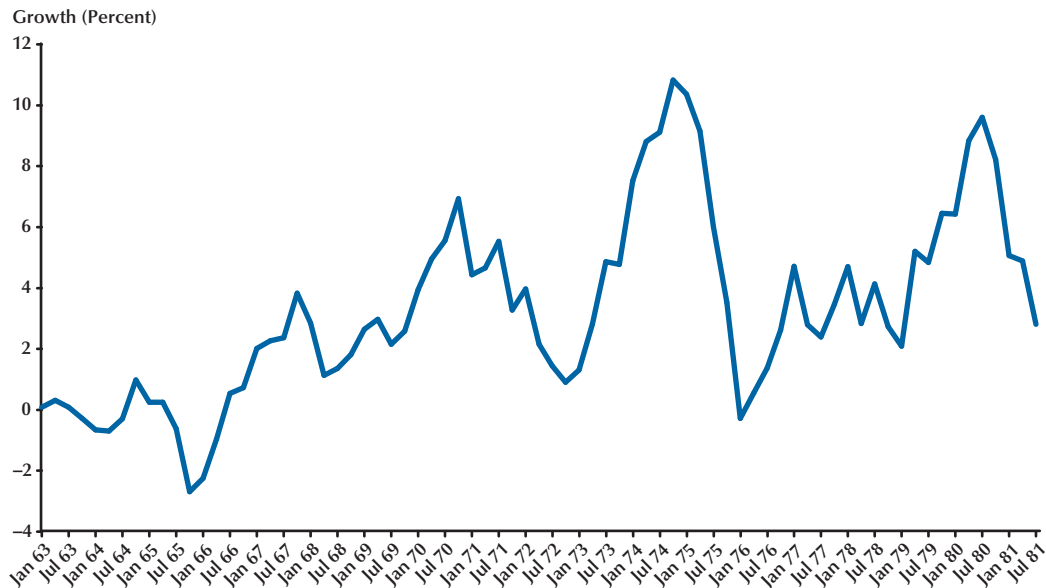
In a series of papers, Orphanides showed that the information available to policymakers from 1987 to 1992 differed, at times substantially, from the data published subsequently for output and inflation. One of his papers (Orphanides, 2001, Figure 2) shows that the output gap, as measured at the time, was generally larger than the output gap based on data recorded in the revised national accounts. The difference was often sufficient to mislead policymakers adjusting policy in response to the output gap and inflation. Orphanides (2004) shows that the principal sources of error were two misperceptions: (i) Through much of the 1970s, policymakers assumed that full employment meant an unemployment rate of about 4 percent; they were slow to recognize that the so-called natural rate of unemployment had increased. (ii) Productivity growth slowed in the late 1960s or early 1970s, but policymakers continued to expect a return to the higher productivity growth of earlier postwar years.

Orphanides’s explanation has considerable verisimilitude, as he shows. I would add that policymakers erred in treating the output loss following the 1973 and 1979 oil shocks as evidence of recession, instead of a one-time transfer to the oil producers that permanently reduced the level of output. This contributed to the mismeasurement of the output gap and the desire to raise output by monetary expansion. This is an example of the pervasive problem created by failing to distinguish between one-time changes and maintained rates of change. The problem remains currently in discussions of inflation targeting. At the time, Germany, Switzerland, and Japan did not make this error and experienced less inflation despite greater dependence on imported oil. This shows that alternatives were known. Fortunately, the Federal Reserve did not repeat the error in 2004.

The more general point based on Orphanides’s work is that the Federal Reserve underestimated inflation throughout the Great Inflation. The persistence of the error raises a question: Why did the FOMC members not recognize the error after a few years and adjust their procedures?

⁷ Of course, anyone who makes repeated decisions, and does not act haphazardly, can be described as having a framework in mind. This is far different from saying that Martin had an economic model relating interest rates or free reserves to output and prices. As he often said, he thought of policy as a river that had to be controlled enough to irrigate the fields without flooding them. After reading Martin’s statements in Board and FOMC meetings, in White House conferences, and in the question-and-answer sessions in Congress (as opposed to statements that his staff wrote for him), I cannot find an economic model. In 1963-64, as a temporary member of the House Banking Committee staff, I interviewed Chairman Martin and asked him to explain how he thought monetary policy worked. He explained about rivers irrigating fields.

⁸ Sargent (1999) develops an explanation that depends on the belief that there was a permanent (or long-run) trade-off between inflation and unemployment. Sargent (2002, pp. 80-85) supplements that explanation by pointing to several additional errors.

Figure 3**Year-Over-Year Monetary Base Growth Minus Year-Over-Year Real GDP Growth, 1963:Q1–1981:Q3**

The Role of Money Growth

A noticeable change occurred in the 1960s. By 1960-61, policy had driven the CPI inflation rate from an annual rate of 3.5 percent in 1958 to 1 percent or less in 1959-61. Under the influence of Winfield W. Riefler, secretary of the FOMC and an influential adviser, Chairman Martin at times testified about keeping the average rate of monetary growth close to the average rate of output growth.

After Riefler retired at the end of 1958, this model of inflation disappeared from the Board and its staff. Malcolm Bryan of the Richmond Reserve Bank and D.C. Johns and Darryl Francis of the St. Louis Bank brought this analysis to the FOMC in the 1960s, without much impact on decisions. Martin at this stage dismissed money growth, claiming that he did not understand the money supply. Governor Sherman Maisel, at the Board from 1965 to 1972, is an exception. He often urged a policy of controlling money growth. He was not, however, willing to control inflation if it required more than a modest increase in the unemployment rate.

Figure 3 suggests that, in addition to its error in measuring growth of real output, neglect of money growth—here, growth of the monetary base—contributed to the policy error.⁹ Comparing Figures 1 and 3 shows that growth of the base in excess of output growth leads the inflation rate throughout the period. Excess growth of the base would have been a useful statistic for future inflation. The Federal Reserve Board staff gave it little or no weight.

Economists in the Nixon administration did not neglect money growth. Neglect of money growth contributes to an understanding of the start of the inflation in 1965-66, but neglect cannot explain why inflation continued after 1969. Economists in the Nixon administration watched reported money growth closely and overemphasized the effect of short-term changes. Their larger error was that most often they wanted to increase money growth to reduce the unemployment rate.

⁹ Base growth is from Anderson and Rasche (1999), so it adjusts for changes in reserve requirement ratios.

A Remaining Puzzle

The references to Orphanides, Sargent, Taylor, and Romer and Romer offer explanations of the Great Inflation compatible with the more general statement that policymakers ignored economic theories that were available. Indeed, the monetarist critique at the time emphasized these differences, as Franco Modigliani (1977) later acknowledged.

The remaining large puzzle is to explain why this happened. Why did the Federal Reserve dismiss for years the long-run vertical Phillips curve and the effect of inflation on nominal interest rates, wages, and anticipations more generally? Propositions that attribute the Great Inflation to analytical errors of one kind or another ought to be supplemented by an explanation of why the error persisted for 15 years before policy changed. As is well known, policymakers began anti-inflation policies as early as 1966 and several times after—1969, 1973, 1978-79, and 1980. They were aware of the Great Inflation but, until 1979-82, they did not persist in policies to end it.

My main objection to explanations based on persistent policy errors is that they are incomplete. Federal Reserve officials could observe inflation rates. They knew that their policies had not ended inflation. Most often inflation was above their forecast. Yet, they did not change course. Arthur F. Burns, who became Chairman of the Board of Governors in 1970, was a distinguished economist, influenced more by data and induction than by deductive theories. Yet, he also failed to stop the inflation and, at times, saw it rise to rates never before experienced in U.S. peacetime history. Most of the FOMC members were not ideologues or slavish adherents to a particular theory. Most regarded themselves as practical men, meaning they were not attached to any particular theory and were willing to discard analyses that did not work. Martin especially was both dismissive of economic theories and strongly in favor of price stability and the fixed exchange rate system. Yet, he left the chairmanship with CPI inflation at a 6 percent annual rate and the fixed exchange rate system on the edge of collapse.

While I accept the importance of analytical errors, I do not believe that either the start of infla-

tion or the 15 years that followed can be explained fully as a consequence of errors in the economic theory that the FOMC applied. In the rest of the paper, the members of the FOMC and the administrations explain their reasoning.

One additional caveat is that the Federal Reserve is not a monolith. Members of the FOMC have independent views. Particularly in the 1960s, they were mostly noneconomists. They had considerable difficulty agreeing on how to implement actions, as Maisel (*Diary*, 1973) documents fully. The staff, or part of it, had a model, but insiders who have written about the 1960s and 1970s often emphasize inconsistency in the choices made by the FOMC (see Lombra and Moran, 1980, Pierce, 1980, and Maisel, *Diary*, various years).

The international character of the Great Inflation is sometimes advanced as support for explanations based on errors in economic theory. The claim is that many countries made the same errors, particularly denial of the natural rate hypothesis. All experienced inflation. Once policymakers everywhere accepted the natural rate hypothesis, time inconsistency theory, understanding of the need for credibility, and rational expectations, inflation declined.

Appealing as this argument is to economists, it fails to separate the start of inflation and its continuance. The start of inflation occurred under the Bretton Woods system of fixed exchange rates. Surplus countries experienced inflation because they would not appreciate their currencies to stop the inflation, and those that did appreciate made at most modest increases in their exchange rate until 1971. They were fully aware of the problem; they did not want a solution that reduced their exports or slowed the growth of output and employment.¹⁰ They opposed dollar depreciation. Once the fixed exchange rate system ended, Japan, Germany, Switzerland, and Austria reduced their inflation rates. Others permitted inflation to continue or increase.

The United Kingdom was the principal deficit country, aside from the United States. It comes closest to supporting the policy errors (or preferences) explanation. Policymakers in both U.K.

¹⁰ Think of China, Taiwan, and Korea, currently.

parties accepted and used a simple Keynesian model. The long delay of sterling devaluation from 1964 to 1967 and the policy measures chosen are evidence of the reluctance to slow growth (Nelson, 2003).

WHY INFLATION STARTED

The Great Inflation started while William McChesney Martin Jr. was Chairman of the Board of Governors. Martin was not a wild radical eager to confiscate the wealth in outstanding bonds and fixed nominal values. He was not a radical of any kind. On the contrary, he was a symbol of conservative fiscal policy and “sound” finance. His contemporaries often portrayed him in caricature wearing a high starched collar and looking like a refugee from the 19th century. He gave many speeches denouncing unbalanced federal budgets, balance of payments deficits, and fiscal profligacy.

Martin seems a most unlikely person to preside over monetary policy at the start of the Great Inflation. Yet, until January 1970, he was in a position to stop it. He failed to do so. When he left office, broad-based measures of prices had increased 5 to 6 percent in the previous year, an unusually high rate of inflation for a relatively peaceful period.

Inflation was not new in 1965, and it was not new to Martin. He had successfully ended the inflation that followed the Korean War. By late 1952, average annual increases in consumer prices reached 1 to 2 percent and continued to fall after price controls ended. By 1954-55, inflation was modestly negative. Again, in 1959-60, average annual CPI fell to 0 to 2 percent from 3 to 4 percent in 1957-58.

The start of the Great Inflation—the sustained increase in the price level—was a monetary event. Monetary policy could have mitigated or prevented the inflation but failed to do so. This section discusses two questions: Why did the Federal Reserve permit inflation to return in 1965? Why did it not repeat the actions that had ended inflation twice in the 1950s?

The detail in the chapter of my history (Meltzer, forthcoming) from which this material is drawn suggests not one answer but several.

Three seem most important. First is Martin’s leadership and beliefs. Second, neither Martin, nor his colleagues in the FOMC, nor the staff had a valid theory of inflation or much of a theory at all. Nor did they have a common set of beliefs about how the economy worked. And some of their main ideas were wrong, as the literature cited earlier points out. Third, institutional arrangements hindered or prevented the taking of timely effective action and, thus, increased inflation. Beliefs and arrangements worked together to allow inflation to start and to continue. One of the most important arrangements was the Employment Act. The prevalent belief was that the Act required coordination of fiscal and monetary policy to achieve an unemployment rate of 4 percent or less. This became a national objective.

Martin’s Leadership and Beliefs

Martin was a highly respected Chairman. He believed passionately in the independence of the Federal Reserve, and he had the courage to insist on its independence when pressured by President Johnson or by presidential staff and officials. In his oral history, he described fully and at length the pressure from the President to rescind the discount rate increase in 1965 and his resistance to presidential pressure at other times.

However, at times, Martin responded to administration pressure by hesitating or delaying action. Although he made a widely reported speech about the dangers of inflation at Columbia University in June 1965, the Federal Reserve did not raise interest rates until December. He urged delay in October 1965. His reason was coordination. He told the FOMC that “he had the responsibility for maintaining System relations within the Government...and he had made that one of his principal concerns during the fourteen years he had held his present office” (FOMC, Minutes, October 12, 1965, pp. 68-69).

He was not confrontational, dogmatic, or unwilling to change his mind. He admitted mistakes and respected Board members who disagreed with him. If a majority did not agree with him about a policy change, he would, if necessary, wait months until a majority formed.

In the System's early years, the Federal Reserve was independent of government, although at times restricted by gold-standard rules. The government rarely intervened in Federal Reserve decisions, despite having two members on the Board; the Federal Reserve operated independently and divulged little information.

By the 1950s, standards had changed. Central banks controlled one part of the policy "mix" that affected the level of employment, output, and prices. Although no longer represented on the Board, successive administrations recognized that the public expected government to maintain high employment rates and avoid inflation. The Employment Act of 1946 codified this practice.

The prevailing interpretation of the Employment Act changed the meaning of central bank independence and with it the goal of monetary policy. In an oft-quoted remark, Martin defined independence indirectly by saying that the Federal Reserve had to take away the punch bowl while the party was still on. His more formal statement described the Federal Reserve as independent within the government, not independent of the government. To those like Martin, that statement went beyond recognizing that the Federal Reserve was the agent of Congress—it also recognized that Congress had delegated and could withdraw its constitutional responsibility to coin money and regulate its value.

The March 1951 Accord freed the Federal Reserve from Treasury control of interest rate levels but retained its co-equal responsibility for debt management. The Treasury had to price its issues in light of current market interest rates. The Federal Reserve's role was to prevent the market from failing to accept a Treasury issue at the announced price; in practice that meant the Federal Reserve supplied enough reserves to keep interest rates from rising around the time the Treasury sold its offering.

Martin explained many times that Congress voted the budget and approved deficit finance. The Federal Reserve was not empowered to prevent the deficit or refuse to finance it. Central bank independence stopped well short of that. Therefore, he complained often about the size and fre-

quency of budget deficits, but the Federal Reserve provided the reserves to finance them. And it rarely felt able to remove the additional reserves after it supported the Treasury's offering. That would have meant higher interest rates and a refusal to finance the deficits that Congress voted. It also implied temporarily higher unemployment.

The problem arose because the Federal Reserve contributed to debt management by adopting an even-keel policy. The Treasury announced the interest rate on its note and bond issues, and it considered an issue to have failed if there was large attrition. Under the even-keel policy, the Federal Reserve kept interest rates from changing before, during, and for a few weeks after the issue was sold. If the issue failed, the System bought it, supplying reserves.

Failures were rare. More often the System supplied enough reserves at the fixed interest rate to permit banks to buy unsold issues. These reserves generally remained with the banks; the Federal Reserve rarely withdrew them subsequently.

Auctioning notes and bonds would have avoided the problem. Both the Federal Reserve and the Treasury opposed securities auctions (except for bills) when the issue arose in the 1950s and 1960s. Finally, in the early 1970s, the Treasury began to auction debt, and the even-keel policy ended. Even-keel is only important for the start and early years of inflation.

The Federal Reserve reduced inflation from 3.5 percent to about zero at the end of the 1950s. The Eisenhower administration shifted from a budget deficit to a surplus between fiscal 1959 and 1960, so debt management played a small role and there was no large increment of debt to finance. The Federal Reserve could end inflation with a maximum federal funds rate below 4 percent. This was not the case in the early years of the Great Inflation, 1965 to 1968. The Johnson administration maintained its spending for Vietnam and the Great Society. Congress delayed approving the surtax. The budget deficit reached \$25 billion current dollars, 3 percent of gross national product (GNP). The Federal Reserve had to invoke even-keel frequently. Monetary base growth remained at 5 to 6 percent, compared with

1 to 4 percent from 1961 to 1964. And growth slowed, so the excess of base growth over output growth rose, as shown in Figure 3.

In the early 1960s, Martin regarded unemployment as structural, not responsive to expansive monetary and fiscal policies. Kennedy administration economists blamed restrictive fiscal and monetary policies, including “fiscal drag,” the tendency of the budget to reach balance before the economy reached full employment. They wanted permanent tax reduction supported by an expansive monetary policy to finance the deficit. In their analysis, policy coordination meant that the government used fiscal actions to adjust the economy. The Federal Reserve was supposed to support the policy by preventing an increase in market interest rates. Martin did not agree with the analysis or the policy, and he later decided that he had been wrong. But he agreed that the Federal Reserve should assist in financing the deficit because Congress approved it. Thus, he accepted “coordination.”¹¹ Later, when deficits increased in size and Treasury offerings became larger and more frequent, the Federal Reserve had fewer days on which it could increase interest rates and more debt issues to help manage.

Martin often said that monetary policy *alone* could not prevent inflation or achieve balance in international payments. Given his belief that the Federal Reserve shared responsibility for successful deficit finance, his statement became true if it required excessive money growth (see Figure 3).

Some of his successors showed that inflation could be reduced *even* in a period with large deficits. In the 1980s, the federal government ran large, persistent deficits. The Federal Reserve had an independent policy, did not assist in deficit finance, and did not coordinate policy. The important operating changes were the end of the Federal Reserve’s even-keel policy of holding interest rates constant when the Treasury sold notes or bonds and the end of policy coordination as practiced

in the 1960s. By the 1980s, the Treasury auctioned its securities and let the market price them instead of having the Treasury set a price that the Federal Reserve felt bound to support.

The Role of Economics

Martin often began a conversation by saying, “I am not an economist.” He had little interest in economic explanations of inflation, claimed not to “understand” the money stock, and did not have much confidence in the accuracy of economic data. He saw, correctly, that short-term changes were unreliable and were often revised substantially.

Martin did not articulate a coherent theory or explanation of the relation of Federal Reserve policy to economic activity and prices. When pressed, he fell back on his analogy to a river. Other members of the FOMC held a wide range of views about monetary policy. Several presidents and Board members were practical men without much interest in theoretical explanations of inflation or economic activity. Bryan (Atlanta Fed) and Johns and later Francis (St. Louis Fed) emphasized money growth and at times proposed procedures for adjusting policy to control money growth, but they never received majority support. A few members of the FOMC, and a growing number of senior staff members, relied on some version of Keynesian theory. To the extent that there was a dominant view, in the early 1960s, the members favored making judgments for the next three weeks based on observable data. If it seemed appropriate, the decision could be revised at the next meeting. This meant that there was no consensus to act against inflation or unemployment until it occurred and was well established. That Chairman Martin was the leading member of this group contributed to its dominance. We know now that this procedure is not optimal.

A by-product of this atheoretical approach was the vague instruction given to the account manager, who was responsible for implementing FOMC policy action. Unable to agree on how their actions affected their longer-term goals, the members could not decide how best to implement policy actions. The Manager of the System Open Market Account had considerable discretion and, the minutes show, members frequently differed

¹¹ The Quadriad became a principal means of coordination. The Chairman joined the Secretary of the Treasury, Director of the Budget, and Chairman of the Council of Economic Advisers in meetings with the President. The Quadriad started in the Eisenhower administration, but it became a principal means of influencing Martin during the Kennedy and Johnson administrations.

over whether the Manager had followed instructions. The Manager's focus was the money market, so his decisions gave much more weight to current technical details than to longer-range objectives such as inflation. For example, after 1970, the Manager rarely paid attention to the FOMC's proviso clause, instructing him to change money market conditions whenever growth of reserves (or some aggregate) became excessive or deficient.

Instructions in the 1960s, to maintain the "tone and feel of the market," achieve moderate ease, or err on the side of restraint, gave little direction even when the members agreed on objectives. Often the instructions in the directive and the stated consensus were so imprecise that one member would criticize the Manager's actions as inconsistent with his instructions and another would follow with praise for the Manager's performance.

The use of free reserves as a policy target added to the dissatisfaction that some members expressed. Free reserves rose when member bank borrowing fell, and conversely. Borrowing rose and fell cyclically, so free reserves moved procyclically. Eventually some members noticed the procyclicality. Also, free reserves often moved opposite to or independently of total reserves, the money stock, or bank credit.

In November 1960, James Knipe, consultant to the Chairman, wrote a memo criticizing the instructions that the FOMC sent to the Desk: "The directives are cast as such pious expressions of intent that they convey...almost no meaning... One gets very little sense of progress from one meeting to the next, and not much of an account of what has just been accomplished or what the Committee believes ought to be accomplished during the next three weeks" (Knipe, November 14, 1960, p. 6). The memo suggested "some use of numbers" (p. 6).

A few weeks later, Malcolm Bryan (Atlanta Fed) wrote to a senior staff member, Woodlief Thomas: "We can defend the actual policy; what I am afraid we can't do is to explain what we mean by the instructions we give" (Bryan, January 14, 1961). Bryan continued his effort to improve procedures. In April 1961, he urged the FOMC to "manage the reserve position...with a great deal more precision, and with a steadier hand"

(FOMC, Minutes, April 18, 1961, p. 22). Bryan argued that total reserves should grow at a 3 percent trend rate based on growth of population and transactions. The figure he presented at the meeting showed that the growth rate fell below trend before each of the postwar recessions and rose above trend during the late stages of economic expansions. Bryan concluded that "we have tended to overstay our position of tightness and to be too tight, and then to overstay our position of ease and to be too easy" (p. 22).

Governor King supported Bryan and welcomed his analysis, but Governor Robertson wanted more expansion than 3 percent growth. He argued that the demand for money changed over time, so he opposed using any "historical trend line as a strategic objective of policy" (FOMC, Minutes, May 9, 1961, p. 42). Bryan's proposal attracted support from one or two presidents, but both Martin and Hayes disliked "mechanical rules" and preferred to rely on judgments made at the time.

The directive to the Manager usually changed when policy changed. Although the members discussed changes in the directive vigorously, they rarely referred to the directive when commenting on policy operations. The directive became public when the Board published its annual report, from 3 to 15 months after the FOMC's decisions. The directive's principal role was to show that the FOMC responded promptly to changes in the economy. It did not fully succeed.

A more substantive problem was the lack of continuity and the weak influence of long-term objectives. Each meeting considered and responded to the most recent data. The members did not have a framework to relate current changes to longer-term developments. Many of the changes to which they responded were transitory, often random movements. Martin (and others) recognized that their policy "must be tailored to fit the shape of a future visible only in dim outline" (Martin, July 11, 1961, p. 68). They lacked a formal or common means of doing so. Martin always remained skeptical about economic models and model-based forecasts, but he did not propose a general guideline as a substitute.

Members recognized the omission of explicit policy guides and the weak connection between actions and long-term goals. In 1961, Vice Chairman Canby Balderston made a long statement about the lack of procedures for achieving long-term objectives. He recognized that discussion loosely related to a long-term objective was sub-optimal and used the growth rate of total reserves to illustrate his points.

The guiding philosophy that I favor for the Committee's decision-making is to proceed steadily, week by week, toward whatever goal seems appropriate.

[Recently] the Committee may have changed its objective from a 5 percent growth rate to a 3 percent growth rate [of total reserves] without full realization as to what had happened, and since the last meeting the implementation of Committee policy has resulted in a radical departure even from the lower growth rate. (FOMC, Minutes, August 22, 1961, pp. 47-48)

Early in 1961, the FOMC considered a memo suggesting changes in the directive. The memo started a discussion that continued through the year. It showed considerable awareness of the need for change. The discussion had two objectives: improving control and public relations. Several members wanted to publish reports of their actions more frequently.

As a consequence, the FOMC made the current instruction to the Manager slightly more explicit by adding a paragraph to the directive. Members of the FOMC, at this time, used different measures or variables to describe the current policy target. Martin did not attempt to reconcile these differences, so the Manager (or whoever guided the Manager) retained control of policy action. The FOMC did not adopt some of the more explicit instructions suggested by the staff (Ralph Young, September 6, 1961). George Clay (Kansas City Fed) gave the reason: "lack of agreement among the Committee members" (Clay, November 13, 1961, p. 2).

Alfred Hayes (New York Fed) favored a proposal by Watrous Irons (Dallas Fed) that would allow FOMC members to comment on a "state-

ment of the general economic policy position of the Committee as it developed out of the discussion" (Hayes, November 3, 1961, p. 3). The Secretary of the FOMC and the Manager would prepare the statement immediately after the meeting. Following a review by the Chairman, members would review, approve, dissent, or propose changes. The statement would appear with the policy directive in the record for the meeting. Hayes emphasized that the policy statement would be short, no more than "three or four sentences to express the main points integral to current policy" (p. 3). The objective was to give greater emphasis to goals such as price stability that could be realized only over time.

Eliot Swan (San Francisco Fed) wrote the following: "We need some economic analysis of policy on a fairly current basis, done within the System, and presented regularly to the public." This would give the public a sense "of what the System is trying to do, how it tried to do it, and what seems to have been accomplished" (Swan, November 10, 1961, p. 3). Swan undercut his proposal by adding that this statement would not be an official statement endorsed by the FOMC.

George Clay (Kansas City Fed) recognized one problem with proposals like Swan's or any attempt to make the directive more explicit. There was a "lack of agreement among the Committee members...[E]fforts to be completely explicit may make it more difficult to arrive at a consensus. But a lack of specific directions shifts the responsibility of interpretation to the Trading Desk... Attempts to be specific also are hampered by the fact that individual members of the Committee differ in the measures through which they express their choices—using free reserves, interest rates, credit expansion, and other terms that cannot be interchanged" (Clay, November 13, 1961, p. 2).

A remaining problem was to agree on the purpose served by the directive and statement of procedure. Public relations, a public record, and directions to the Manager received different weights from each of the members. The more astute members recognized that any substantive statement restricted future actions. Several agreed that procedural rules, such as dealing in bills only

or not supporting bond prices, “are unnecessary and can prove to be administratively embarrassing at times” (Deming, November 24, 1961, p. 1). The problem in writing explicit rules was that “they may be limiting at times and thus force hard-to-explain deviations; if they are written so broadly as to escape these difficulties, they become almost meaningless” (pp. 1-2). Frederick Deming (Minneapolis Fed) opposed an explicit target because the FOMC would have to explain why it deviated. He insisted that the directive

could not be couched in terms of a guide or guides such as free reserves, money supply, total reserves, federal funds or bill rates...I simply do not believe that any one indicator is...good enough to use all of the time and I fear that should we attempt to use one (or more) in the directive itself, we will spend a great deal of time subsequently trying to explain why we did not get quite the precise results that these apparently precise indicators would imply we sought. I also feel that an attempt to write directives in specifics would push uncomfortably close to mechanistic policymaking. (p. 3)

The letters show clearly that one major purpose that the old flexible and imprecise directive served was covering up disagreements within the FOMC. Bryan and Hayes did not agree about a quantitative target for total reserves, but both agreed with Irons that the FOMC should maintain procedural rules. Bryan differed with several of his colleagues by recognizing the problem that a vague directive posed. Unlike the majority, he believed the FOMC would be well served if it adopted a quantitative target, but he understood that his proposal did not attract much support.

The discussion at this meeting, many subsequent discussions, and failure to adopt a quantitative objective suggest that a majority did not favor precise instructions and explicit objectives. One reason is that ambiguity provided opportunities for Martin, Hayes, or the Manager to change directions. Unambiguous policy objectives and operating procedures to achieve the objectives required a commitment to rule-like behavior that

many on the FOMC were not willing to make.¹² Martin usually made no comment on more explicit statements of direction, perhaps because he recognized that agreement was unlikely.

Once inflation started, the issues changed. Some members believed that inflation could permanently lower the unemployment rate. Others were more concerned about the temporary increase in the unemployment rate resulting from actions to slow inflation. Several accepted that little could be done as long as the federal government ran budget deficits. Since there was no generally accepted framework relating unemployment, inflation, budget deficits, balance of payments, and Federal Reserve actions, there was no agreement about a long-term strategy.

The members recognized that they did not have a common framework. After Sherman Maisel became a Federal Reserve Governor, in 1965, he tried to make policymaking more coherent and systematic (Maisel, 1973). He soon recognized that there was no basis for agreement; members told him that they were unlikely to find a common framework.

The minutes have an occasional remark about anticipations of inflation. There is little evidence of a general understanding at the time that anticipated inflation raised interest rates. The FOMC did not distinguish between real and nominal rates until much later. At the start of the inflation, and for a long time after, members using nominal interest rates overestimated the degree of restraint. Misinterpretation added to the pressures from President Johnson to keep interest rates from rising. They also overestimated the expected growth of output after productivity growth slowed in the mid-1960s.

One way to avoid responsibility for inflation was to find some other cause. Much public and policy discussion blamed labor union demands for starting inflation, treating these wage demands as autonomous events and not as a response to actual and anticipated inflation. Many at the Federal Reserve and in the administration shared this view. This led to the use of guideposts for

¹² Cukierman and Meltzer (1986) later showed the advantages of ambiguous policy directives for policymakers who wanted to change objectives.

wage and price increases. The universal failure of guideposts and guidelines to prevent inflation did not quickly change these views. And it did not remind the proponents that noninflationary policies would prevent large relative price changes from affecting the general price level. Lucas (1972) and Laidler and Parkin (1975) showed that relative price changes would not cause a sustained inflation in the absence of actual or anticipated expansionary policy.

Martin explicitly rejected the idea that policy could reduce unemployment now and respond to inflation later, the Phillips curve reasoning favored by Walter Heller and other members of the 1964-65 Council of Economic Advisers. The Kennedy-Johnson tax cut brought this issue to the front because the Johnson administration argued that the deficit created by the tax cut was both desirable and temporary. By approving the tax cut, Congress knew that the resulting deficit was not an accident. So did Martin and the Federal Reserve. Martin believed he had a responsibility to finance it without a large increase in interest rates, but he did not accept the analytic argument. It wasn't that the Phillips curve was vertical; it was whether there was a reliable trade-off.

Over the years, we have seen counterpoised full employment or price stability, social objectives or financial objectives, and stagnation or inflation. In the last case there was even a serious discussion of the number of percentage points of inflation we might trade off for a percentage point increase in our growth rate. The underlying fallacy of this approach is that it assumes we can concentrate on one major goal without considering collateral, and perhaps deleterious, side effects on other objectives. But we cannot. If we were to neglect international financial equilibrium, or price stability, or financial soundness in our understandable zeal to promote faster domestic growth, full employment, or socially desirable programs, we would be confronted with general failure. (Martin, February 1, 1963, pp. 10-11)

That statement showed that Martin was aware of the inflationary (and balance of payments)

consequences of financing the deficit. But he was under pressure from his own beliefs about the meaning of independence, from the Council's belief in policy coordination, and from President Johnson's opposition to higher interest rates.

The Council used its *Economic Report of the President* to instruct the Federal Reserve about proper actions: "It would be self-defeating to cancel the stimulus of tax reduction by tightening money" (Council of Economic Advisers, 1964, p. 11). Martin recognized the political pressure to avoid increasing interest rates before the 1964 election. His early meetings with President Johnson reinforced his beliefs that Johnson was a populist who supported his populist views with the policy coordination arguments he learned from Heller and others.¹³

In December 1964, the Federal Reserve raised the federal funds rate by 0.5 points to 4 percent. Monetary base growth remained at a 5 to 6 percent annual rate. By May 1965, annual CPI inflation rose to 1.75 to 2 percent, the highest sustained rate since 1958.

The year 1965 was the transition from one of the best four-year periods in U.S. experience to years of inflation and slow growth. It was the last year of strong productivity growth and the first year of rising inflation. The four-quarter average rate of increase in the GNP deflator rose from 1.5 to 3 percent. The CPI began the year rising at a 1 percent annual rate. It ended at 2 percent; a 12-month moving average of the CPI rate of increase did not fall below 2 percent in any month for the next 20 years. The unemployment rate fell from 5 percent at the start of the year to 4 percent at the end.

To administration economists, with their faith in the Phillips curve, the increase in inflation was the price paid for lower unemployment. They were willing to pay the price, reluctant to tighten policy. Martin and several of his colleagues on

¹³ In case Martin forgot, Heller reminded him and urged President Johnson to do the same. For example, on March 2, Heller sent a memo to Johnson stating, "Martin's fears of prospective inflation seem to be mounting to a fever pitch" (Heller, March 2, 1964). He urged Johnson to hold a meeting of the Quadriad to increase pressure on Martin. Arthur Okun quoted Johnson's comment on interest rates: "It's hard for a boy from Texas ever to see high interest rates as a lesser evil than anything else" (Hargrove and Morley, 1984, p. 274).

the FOMC held a very different view. They were more concerned about inflation and the balance of payments.

Until 1965, the U.S. balance of payments had improved, and not just because of the visible capital controls and military purchases at home. Relative prices shifted to increase U.S. competitive advantage. The beginning of domestic inflation reduced this advantage, leading to a decline in the current account surplus.

The administration made the first of several errors. Early in 1965 the President's economic report and his other messages announced the need for further expansion and proposed a reduction in excise taxes and a "budget that will once again contribute expansionary force rather than restrictive pressure" (Council of Economic Advisers [CEA], 1965, p. 9). This was part of an ambitious program to achieve "the Great Society" by increasing funds for poverty programs, welfare, and training. Monetary policy could contribute by continuing to twist the yield curve by holding up short-term interest rates to stem a capital outflow, while lowering long-term rates to encourage domestic expansion (pp. 105-06). The President also asked for repeal of the 25 percent gold reserve requirement against deposit liabilities of Reserve Banks (p. 12).

The administration's concern for fiscal stimulus came despite a decline in unemployment to 4.8 percent in January 1965 and a reported 7.5 percent annual rate of increase in industrial production in 1964, a year with a major automobile strike. These and other signs of strength should have suggested that additional stimulus was unnecessary, but administration economists did not interpret them that way. Reports of a large increase in the payments deficit at the end of 1964 gave evidence that the interest equalization tax had shifted a large part of foreign borrowing to banking markets not subject to the tax. The first quarter increase in the deflator, 4.9 percent at an annual rate, gave a second warning: This was the largest quarterly increase in eight years. The gold outflow in January gave an additional warning: At \$263 million, it was twice the amount of gold sales for all of 1964. Outflows continued in February and March, reaching a record \$832 mil-

lion for the first quarter and \$1.664 billion for the calendar year.¹⁴ About half the outflow went to France.

If the push for additional stimulus was the first mistake made that year, it was not the last. More consequential were the efforts in mid-summer to hide the increase in military spending to support the Vietnam War and, late in the year, public pressure on the Federal Reserve to prevent any increase in interest rates. The Federal Reserve chafed under administration pressure, but it permitted annual growth of the monetary base to reach 5.9 percent by December, the highest 12-month growth rate since early 1952.

The Federal Reserve did very little during the first half of 1965. Treasury borrowing required even-keel operations much of the time. That alone cannot explain the cautious, hesitant response. Four reasons stand out.

First, Martin wanted the FOMC to reach a consensus before it acted. He often waited, thinking that discussion, events, and perhaps collegiality would help form the consensus. But Governors Mitchell and Robertson persistently opposed tighter policy. On April 30, Sherman Maisel, an economics professor from the University of California at Berkeley, joined the Board, replacing a banker, Abbot Mills. Maisel usually voted with Mitchell and Robertson. Later, after the President appointed Andrew Brimmer to replace Canby Balderston, Martin was never certain when he would have a majority of the seven Board members. He hesitated to act with a majority of the FOMC if it did not include a majority of the Board.

Second, and most important, Martin believed he had a duty to prevent inflation and maintain the dollar's value. This belief clashed with his firm belief that the Federal Reserve was independent within government. If an elected administration proposed and Congress approved budget deficits, the Federal Reserve had to help finance part of them. He could complain internally, and even externally, but he did not choose to undermine decisions of elected officials and legislators.

¹⁴ The gold outflow included an additional subscription to the International Monetary Fund.

Third, “policy coordination” added greatly to the problem. Independence “within the government” suggested that monetary, fiscal, and other administration policies should seek the same objectives and attach similar weights to employment, price stability, and the payments deficit. This did not happen. Martin did not accept the mistaken idea that policymakers could maintain a welfare-maximizing inflation rate that lowered unemployment to the socially desirable minimum. He expressed much greater concern about inflation and the balance-of-payments deficit than President Johnson or his advisers. When Douglas Dillon left the administration, Martin lost a powerful ally inside. He had earlier lost a President who paid attention to his warnings and acquired one with entrenched populist views who hated “high” interest rates (Bernstein, 1996, p. 364).

Policy coordination ensnared Martin in administration policy. He willingly sacrificed part of the Federal Reserve’s independence for the opportunity to be part of the economic “team,” make his views known to the President, and coordinate policy actions.¹⁵ Inevitably he compromised by surrendering some independence of action to coordinate policies. His offer to resign in February 1965 possibly reflected recognition that coordination with President Johnson and his advisers would be costly to Federal Reserve independence and to the country. Although he warned the country about inflation many times, he accepted reappointment in 1967 and remained until his term ended in 1970, without implementing the policy actions that he favored to achieve price stability and protect the gold stock.

President Johnson’s main argument in 1965 was that coordination required Martin to wait until he announced the 1967 budget estimates in January 1966, but he refused to give accurate estimates. In November 1965, the working estimate called for \$105 billion of total spending in fiscal 1967. By mid-January, estimated spending had increased to \$106.4 billion for fiscal 1966 and

\$112.8 for 1967, but the 1967 estimate assumed that ordinary spending for the Vietnam War ended in December 1966. That held defense spending to \$57 billion. Actual spending was \$114.8 and \$137.0 billion in fiscal 1966 and 1967, respectively, and defense spending reached \$58 and \$71 billion in the two years, respectively (Johnson, December 20, 1965).

Fourth, and of lesser importance, the Federal Reserve staff and several of the members denied for several years that inflation had either begun or increased. They did not deny the numbers they saw. Like Gardner Ackley, they gave special explanations—a relative price theory of the general price level—in effect claiming that the rise in the price level resulted from one-time, transitory changes that they did not expect to repeat. Later, they added other explanations, especially that the cause of inflation had changed from the classic “demand pull” to the new “cost push.” This reasoning exempted the Federal Reserve (and other central banks) from responsibility and suggested that the problem was not monetary. Governor Sherman Maisel (1973, p. 284) presented the main idea:

In a period of general stability, a strong union or a monopolistic or oligopolistic group of companies may try to increase their income. If they have enough power, they can do so even though unemployment exists elsewhere. It is theoretically possible that other prices would fall as they raise their prices, but this is unlikely in most modern economies, where wages and prices are too rigid to react to minor increases in unemployment. In fact, the opposite occurs. Workers in industries with somewhat lower demand will strive for higher wages also...[S]ince profits are generally not that large, over time any increase in wages must show up in higher prices.

The economy had not acted that way in 1961-64. But, even if modern economies acted as Maisel described, his discussion explains why the price level would be higher. It does not explain why prices would continue to increase or increase

¹⁵ During the 1964 expansion with low inflation, Martin told Heller that he had been wrong to think that the tax cut “would quickly fire up, not to say overheat the economy.” He offered to “cooperate with the CEA—he always has...but he was particularly warm and insistent about it” (Heller, July 17, 1964).

at a rising rate. This distinction, between a change in price or wage level and a maintained rate of change, hindered clear thinking about inflation. Sometimes the word meant any price level increase. Elsewhere it meant a sustained rate of increase. Since one-time price level increases often took place over time, it was easy, but misleading, to mix the two.

The sustained rate of price increase could not continue without an increase in money or its rate of use (velocity). Maisel recognized that without an increase in money, cost-push price increases were limited. He wrote that the principal reason prices continued to increase was “the unwillingness, for valid economic and political reasons, to allow the economy to suffer the necessary recession or depression which would accompany a policy of not expanding money because incomes are being pushed up from the cost side” (p. 25). Then he added a critical sentence: “The level of unemployment required to stabilize prices...is higher than that which the economy finds acceptable” (p. 25).

This popular explanation worked with other features of the Federal Reserve’s approach, such as coordination, support for deficit finance, and failure to distinguish between real and nominal rates. No single person may have held all of these views. The ideas worked together to start inflation—sustained rates of price increase—and permit it to continue.

The most likely alternative explanation was not advanced at the time. Once the public learned that policymakers would act to prevent a rise in unemployment, they anticipated, correctly as it turned out, that anti-inflation policy would cease soon after unemployment started to increase. This is not to be confused with the vertical, long-run Phillips curve. It does not invoke a vertical Phillips curve; it is not inconsistent with that proposition, but it emphasizes the shifting policy analyzed in Cukierman and Meltzer (1986) and the anticipations induced by the policy.

The FOMC met eight times during the first half of 1965. It voted twice for “slightly firmer” policy, on February 2 and March 23. Governors Mitchell and Robertson opposed both changes, joined by President Clay (Kansas City Fed) in

March. Free reserves responded to the changes, but interest rates declined during the first half of the year. In May, four members of the FOMC dissented; they wanted a tighter policy. Martin did not support them.

At almost every meeting, there are references to expanding activity, rising prices, rapid credit expansion, or an increasing payments deficit. Difficulties in separating persistent and temporary changes, such as anticipation of rising prices or inventory building in anticipation of a steel strike, reduced the impact of the observations. The administration put on additional controls to reduce the foreign payment outflow, supporting those who wished to put responsibility for the gold loss on the administration and away from monetary policy.

The FOMC remained divided during the spring. The May 25 meeting minutes summarized Chairman Martin’s policy view:

His own thinking probably tended in the direction of the group favoring firming, although no one could be sure about the appropriate timing. He was becoming increasingly worried about both the balance of payments and the possibility of domestic inflation. His views were not firm on either point. (FOMC, Minutes, May 25, 1965, p. 62)

His colleagues must have been surprised when he spoke at the Columbia University commencement a week later. His speech compared the economic situation in 1965 with that of 1928-29. He pointed to similarities and differences. He did not claim that the country faced a serious inflation threat. His concerns were financial weakness and speculation. The press and stock market speculators emphasized the alleged similarities with 1929, not the differences. Industrial stock prices fell 5.4 percent in the next five weeks and did not pass their previous peak for four months.

In the spring, the Treasury was concerned about a possible slowdown of economic growth. During the summer, a new problem slowly emerged. Beginning in July 1965, President Johnson expanded the resource and financial commitment to the Vietnam War by announcing

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that additional troops would be sent to Vietnam. The President did not let the members of the Council or Treasury officials know the actual size of planned spending increases. Martin learned from Senator Richard Russell, as early as July, that the budget deficit would be much larger than Johnson admitted to the Treasury, the Council, or the Quadriad. “I had better information than the Treasury had...I went to the President, oh, I’d say four or five times and laid them out to him” (Martin, May 8, 1987a, pp. 1-2).

Johnson did not want to reduce spending, raise tax rates, or have the Federal Reserve raise interest rates. Martin described the conversation.

He [President Johnson] didn’t want any increase in rates and he wanted me to assure him that there wouldn’t be. I couldn’t do that, of course. I had already made up my mind that we needed an increase in rates. So I did my best to break this to him as gently as possible but wasn’t so very successful in that he was absolutely convinced that I was trying to raise the rate and pull the rug out from under him. I said “Mr. President you know that I wouldn’t do that to you even if I could.” He said, “Well I’m afraid you can.” And I said, “Well, I want to tell you right now that if I can [raise the rate] I will, because I think you’re just on the wrong course. I’ve been perfectly fair with you. I was over here early this year.” (Martin, May 8, 1987b, p. 9)

Despite increases in long-term rates in August and September, no action followed for several months. In July, Ellis (Boston Fed) dissented because he wanted a firmer policy. In late August, Trieber (New York Fed) did the same. Martin “was in complete agreement with the consensus...for no change in policy” (FOMC, Minutes, August 31, 1965, p. 68). Hayes argued for a tighter policy in September, including a discount rate increase. Balderston, Shephardson, and Ellis (Boston Fed) favored a discount rate increase after the Treasury completed its financing. Martin did not think the timing was right. The vote was nine to three for no change. Maisel, Mitchell, and Robertson dis-

sent because interest rates had increased despite a policy of no change. They wanted policy to ease to roll back the increase.

At a Quadriad meeting early in October, Ackley and Treasury Secretary Henry Fowler urged Martin to delay any increase in interest rates until the evidence was clearer. Ackley proposed waiting until January, when the new budget data became available. Fowler argued that “risks of tightening are greater than the risks of over-staying present policies.” He called the danger of overheating “tenuous,” and he wanted the administration to oppose changes in the prime rate (Fowler, October 6, 1965, pp. 1-2).

Martin’s memo for the Quadriad meeting tried to shift discussion from interest rates to credit growth. He noted that Regulation Q ceiling rates caused credit to flow outside the banking system, and he warned of “rising expectations, evidenced in financial markets and real investment.” A slight increase in interest rates would help to extend the expansion and improve the balance of payments (Martin, October 6, 1965).

Martin’s views did not prevail. A week later at the FOMC, he read his memo to the President. FOMC members split. Some agreed with Martin but wanted to wait for the Treasury to complete its financing. Others opposed because they saw no sign of inflation. Faced with a divided Committee and administration opposition, Martin not only did not insist, but voted against an increase. After warning the Committee about the danger of waiting too long, he explained why the FOMC should not change policy.

As Chairman, he had the responsibility for maintaining System relations within the Government—for getting the thinking of the President and members of the Administration, and for apprising them of the thinking within the Committee—and he had made that one of his principal concerns during the fourteen years he had held his present office. Last week he had given the President a paper expressing his personal views...[H]e had talked with the Chairman of the Council of Economic Advisers, with Treasury officials, and with the President. They had all expressed the

view that it would be unwise to change monetary policy now. The President had not taken a rigid position on the matter—he had not suggested that the Committee should abdicate its responsibility for formulating monetary policy...At the moment, however, the Administration was strongly opposed to a change in policy.... With a divided Committee and in the face of strong Administration opposition he did not believe it would be appropriate for him to lend his support to those who favored a change in policy now. (FOMC, Minutes, October 12, 1965, pp. 68-69)

The President was not much concerned about Martin's warnings about spending and the deficit. He spent much of the fall of 1965 pushing enactment of new spending programs for education and the environment (Califano, 2000, pp. 70, 81). Apparently, policy coordination worked only in one direction.

In September, Martin had agreed to let the Federal Reserve staff participate in a joint effort with the staffs of the other Quadriad members to study where the economy was headed. The report in November concluded that the Federal Reserve "should not tighten for the remainder of the year" and should reconsider action when the budget and GNP estimate for 1966 became known¹⁶ (Okun, p. 24). Monetary tightening should wait for GNP to reach \$720 billion, a 5 percent increase from 1965 and almost 2 percentage points above the standard forecast (p. 24).

Martin knew that the budget estimates understated the increase in defense spending and that Johnson had suppressed the planned increase. He knew also that contrary to standard practice, the Budget Bureau would not discuss the budgetary projections with him or his staff. Martin distrusted President Johnson and was inclined to give more attention to markets than to economists' forecasts. Government bond yields began to rise in August and had increased 20 basis points by mid-November to the highest level since 1960. This was a large increase by the standards of the time.

On November 4, the Treasury's issue of 18-month 4.25 percent notes was not well received, allegedly because of concerns about increased spending for Vietnam. Between August 1 and December 1, yields on 3- to 5-year Treasury issues rose 42 basis points to 4.52 percent (Board of Governors [BOG], 1965, p. 190). In the month of November, the System bought \$5.5 billion of 1- to 5-year securities, mainly the new note issues, and sold Treasury bills or let them run off.

The market had signaled that interest rates should rise. With a few brief exceptions, the federal funds rate had remained above the discount rate since March. Data available at the time showed rapid growth in the monetary aggregates.

Martin had another source warning about inflation: the Federal Advisory Council (FAC), 12 bankers with statutory responsibility for advising the Board. Members explained the strength of investment spending as an attempt to substitute capital for rising labor costs (BOG, Minutes, September 21, 1965, p. 3). In November, the FAC repeated its September warning: "The Council is concerned with increasing evidence of the development of inflationary pressures, the continued strong demand for bank loans...Consequently, we believe the Board should be prepared to move in the direction of further restraint, including a tightening of reserves and an increase in the discount rate" (BOG, Minutes, November 16, 1965, p. 22).

Martin was, finally, ready to accept the challenge despite continued opposition from the administration. His reason was to show independence, not to reduce growth of credit and money. At the FOMC meeting on November 23, the staff proposed that if the FOMC tightened policy, it should reduce reserve growth and keep Regulation Q ceiling rates unchanged. This would force a reduction in CDs and bank credit. Hayes proposed the opposite, an increase in ceiling rates and the discount rate (Maisel, *Diary*, December 3, 1965, pp. 3-4). Nine of the twelve presidents either opposed a discount rate increase or wanted to wait. Martin said the market's "expectations were just as much that the President would not allow any interest rate changes as to the contrary" (FOMC, Minutes, November 23, 1965, p. 84). "He

¹⁶ Martin did not share the report with Board members. We could not find a copy in the Board's archives.

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wanted to raise the discount rate in order to free the interest rates from domination by the President and he was more interested in this than he was in tightening the amount of money” (Maisel, *Diary*, December 3, 1965, p. 15). He opposed an increase in reserve requirement ratios because he did not want to reduce availability. His aim was to show that the System had not yielded to the administration (Maisel, *Diary*, January 18, 1966, pp. 2-3).

Maisel warned Ackley that the discount rate would increase. Martin had already told him. The President was at his ranch in Texas recovering from a gall bladder operation. On November 29, the President’s assistant relayed an urgent telegram from Ackley to the President in Texas warning that Martin intended to approve a discount rate increase the following week. The telegram quoted Maisel as urging the President to tell Governor Daane to oppose any increase until January (Califano, November 29, 1965). A few days later, Ackley followed with a memo claiming that he had failed to distinguish between real and nominal interest rates, but he argued that the voluntary restraint program on bank lending to foreigners was an effective substitute for higher interest rates in reducing the capital outflow. The President responded by inviting the Quadriad to his ranch the following Monday.

Martin decided to act before the Texas meeting. On December 3, the Board voted four to three to raise the discount rate at New York and Chicago. In the next ten days, all Reserve banks adopted the 4.5 percent rate. Robertson, Mitchell, and Maisel dissented. Dewey Daane cast the swing vote supporting the increase. Following the vote, the Board voted to increase Regulation Q ceiling rates to 5.5 percent.

The opponents used a number of arguments. Robertson said that inflation was not inevitable. Higher rates might bring on recession and would raise the cost to the Treasury of marketing its debt in January (BOG, Minutes, December 3, 1965, p. 2). Robertson proposed instead to (i) slow the issue of (unregulated) bank promissory notes by making them subject to Regulation Q ceiling rates and (ii) allow banks to borrow reserves to cover the loss of time deposits because Regulation Q ceiling rates were below market rates. Reminiscent of

the Riefler-Burgess doctrine, he explained that increased member bank borrowing “should serve to moderate somewhat the rate of advance in bank credit” (BOG, Minutes, December 3, 1965, p. 3). He also opposed increasing Regulation Q ceiling rates.

Mitchell did not agree. He opposed the increase in the discount rate on political grounds. The Federal Reserve “appeared to be on a collision course with the administration” (p. 7). He preferred to negotiate a 0.25-percentage-point increase with the administration, but he favored an increase in ceiling rates and would support a 5.5 percent ceiling rate on all maturities over 15 days (p. 9).

The recovery was Maisel’s main concern, but he also believed they should wait for the President’s budget in mid-January. He favored incomes policy to control prices and wages. “A discount rate increase...could be interpreted only as a vote of no-confidence by this Board in the national goal of growth at full employment” (p. 16). Neglecting 2 percent inflation, he warned the Board that the discount rate at New York had not been as high as 4.5 percent since November 1929 (p. 17). He dismissed current concerns about inflation. If inflation rose, the Board could act later.

The winning coalition was in place. Dewey Daane made the case for higher rates, based on persistent price pressures, the risk of more general price increases, and the prospect that an investment boom had started. He mentioned a 10 percent increase in business fixed investment as especially troublesome. He added that he worried about “deterioration in our balance of payments not entirely papered over by changing definitions and some strenuous Governmental efforts to achieve postponement of some scheduled outflows into next year’s statistics” (p. 11). Then he added that higher interest rates “will contribute to the relative price stability essential to the eventual resolution of our balance of payments problem” (p. 11).

Martin spoke last. He warned about the risk to the System’s independence if it acted against the President’s wishes. “There is a question whether the Federal Reserve is to be run by the administration in office” (p. 28).

The Board's announcement emphasized that it wanted to slow excessive demands for credit and maintain price stability. A news story describing the action said, "The Federal Reserve has no intention of imposing a severe 'tight money' policy that would render bank loans difficult to get" (*New York Times*, December 6, 1965, p. 6). Nevertheless, President Johnson criticized the decision, publicly expressing his view that it would hurt consumers and state and local governments and complaining that "the decision on interest rates should be a coordinated policy decision in January" (p. 31). *The New York Times* editorial supported the President on coordination while recognizing that inflationary pressures had increased and the administration had restricted its efforts to pressuring industries and firms not to raise prices (p. 36).

Gardner Ackley, the Council's chairman, used more pointed language (Ackley, p. 3). But Ackley's concern was as much about the breakdown of policy coordination as about the increase in interest rates.

The members of the Council were not entirely unsympathetic with Martin's position. We agreed that some kind of restraint was necessary. We would have much preferred a tax increase rather than tighter money. We not only clearly predicted to the President that monetary policy would tighten considerably farther, but I suppose in a sense we also had a certain amount of sympathy with what the Fed was doing, although we didn't always express that sympathy strongly or clearly in the President's presence. (p. 4)

Later, Ackley described policy development under the pressure of war finance as he saw it. Johnson opposed any reduction in spending on his Great Society programs. He disliked higher interest rates. That left a tax increase to pay for rising costs of war and the Great Society programs. By October, Ackley claimed that the Council knew about spending increases.

It is frequently assumed that at this period the Council of Economic Advisers and perhaps other people were misinformed

about some of the facts...about the size of prospective government expenditures... [W]e had all the evidence we needed to conclude without any question, certainly by November or early December, that a tax increase was absolutely necessary if we were going to avoid substantial inflation in 1966. So the proposal for a tax increase was well formulated and strongly supported by Treasury, Council, and Budget Bureau in the late fall and throughout this period. (Hargrove and Morley, 1984, pp. 247-48)¹⁷

Some of the President's advisers claimed that if Martin had not raised the discount rate, the President might have asked for a tax increase early in 1966 (Okun, p. 25). Dewey Daane explained, however, that Martin knew Wilbur Mills (Chairman of the House Ways and Means Committee) well and "never had any sense that there was the slightest possibility of a tax increase from LBJ" (Hargrove and Morley, 1984, p. 252). Johnson (1971, pp. 444-45) confirms this. For Martin, coordination had become a one-way street; the Federal Reserve supported administration policies but had no support for its own concerns.¹⁸ The President had refused to confirm what Martin knew about the budget. Inflation had started to increase, and the market people, whose judgments Martin relied on more than economists' forecasts, saw this in the large increase in lending to finance war production. He took a temporary respite from coordinated policy.

The discount rate increase raised criticisms of Martin and the Federal Reserve out of proportion to the steps they had taken. Congressman

¹⁷ Ackley's memos in the Johnson library do not support his claim or his recollection about timing. His recommendation appears in a December 17 memo, two weeks after the rate increase.

¹⁸ It was not just the President. Ackley claimed that he liked Martin, but he did not respect him or his opinions. "Martin was absolutely zero as an economist. He had no real understanding of economics" (Ackley, p. 6). Heller, who continued to advise Johnson after he left the Council, regarded coordination as a way of influencing, possibly controlling, the Federal Reserve's actions. Ackley did not believe the Federal Reserve should be independent: "I would do everything I could to reduce or eliminate the independence of the Federal Reserve" (p. 6). This attitude, whether or not expressed openly, was unlikely to make Martin believe that the relation was one of equals coordinating their actions.

Wright Patman called for Congress to end Martin's power. Senator Paul Douglas (Illinois) called the action "as brutal as it was impolite," and Senator William Proxmire (Wisconsin) said it was a blunder and demanded hearings (*New York Times*, December 7, 1965, pp. 1, 74).

The press report of the meeting at the ranch suggested that Johnson and Martin had a difference of opinion, but the "atmosphere [at the press conference] was suffused with sweetness" (p. 1). Martin's account of the meeting was entirely different. Johnson accused him of taking advantage of his illness and harming his presidency. "He was very disagreeable" (Martin, 1987b, p. 14). But Martin did not yield, even when Johnson swore at him. Martin's account explains why his efforts to coordinate delayed action, despite his June speech and his many warnings about inflation.

The rate increases remained in effect. Under intense pressure, Martin courageously maintained the Federal Reserve's right to independent action, but the action did not stop inflation or slow growth of the monetary base. The monetary base and M1 continued to increase rapidly as the Federal Reserve attempted to moderate the impact on market rates.

Martin had not raised the discount rate to reduce money growth. At the first FOMC meeting after the discount rate increase, his concern was the shock to the market from the increases in discount and Regulation Q ceiling rates. The FOMC agreed. Part of the market's uncertainty probably came from growing recognition that inflation had returned (Maisel, *Diary*, Summary, February 9, 1967).¹⁹ The directive called for moderating the market's turbulence.

Instead of a restrictive policy to stop inflation, "credit was supplied between December and the end of June at record-breaking rates. The rate of increase in total reserves from December through June was at a 6.3 percent annual rate. This was four times as large as the June-November 1965 period. All other aggregate measures showed similar rates of increase" (p. 1).

Those who voted for the discount rate increase argued for minor restriction of credit; those who voted against the increase recognized that the administration had left the problem to the Federal Reserve. Although they believed that fiscal restraint was the preferred policy, they saw that it was not about to happen. They argued for more monetary restriction, citing the growth of the aggregates as evidence of the need for restraint (p. 3). Martin and other proponents of moderation relied instead on the decline in free reserves and the rise in the federal funds rate and other short-term rates. They believed that policy tightened.²⁰

By March, long-term Treasury yields reached 4.7 percent, a 0.35-percentage-point increase after the discount rate increase, and the federal funds rate reached 4.63 percent, a 0.5-percentage-point increase. Member bank borrowing increased, and free reserves reached -\$255 million in March (from \$8 million in December). As on many other occasions, free reserves and interest rates misled the majority of the FOMC.

Governor Maisel (1973) drew a similar conclusion. "Federal Reserve doctrine was based on a money market strategy. The Fed used money market conditions simultaneously as a target, or measure, of monetary policy and as a guide for the manager" (p. 78). Referring to his introduction to FOMC procedures, Maisel wrote, "Nowhere did I find an account of how monetary policy was made or how it operated... Arguments had been strong and quite clear [in 1965] because they were based primarily on ideological views... Frequently, members of the FOMC argued over the merits of policy without ever having arrived at a meeting of the minds as to what monetary policy was and how it worked" (pp. 77-78).

The absence of a relevant, coherent framework proved costly. By March 1966, the 12-month rate of increase in the CPI reached 2.8 percent, the highest rate in eight years. The Great Inflation had started.

Arthur F. Burns became Chairman of the Board of Governors in February 1970. He was the first economist to hold that position. A close

¹⁹ Maisel did not start keeping a diary at each meeting, although he took notes. The February 9, 1967, summary covers some meetings from December 1965 to October 1966. The text is based on notes made at the meetings. I am extremely grateful to Sherman Maisel for making his diary available to me.

²⁰ Maisel (1973, pp. 83-85) gives a full account of the arguments at the February 1966 meeting. He documents the misleading interpretation of a decline in free reserves as evidence that policy had become more restrictive despite the large increase in total reserves.

associate of President Nixon, he served as an adviser on many nonmonetary issues during his term as Chairman, and he infuriated the President in 1970-71 by calling publicly and frequently for a wage-price review board to control inflation.

At first, Burns agreed to the administration's gradualist approach to slowly lower inflation with very little increase in unemployment. By the time he became Chairman, however, the economy was in recession, with the unemployment rate well above the acceptable 4.5 percent that the gradualist policy hoped to keep as a maximum. Burns persuaded the FOMC to adopt a more expansive policy despite the 6 percent CPI inflation rate. For the second time, the Federal Reserve retreated from an anti-inflation policy. This reinforced the expectation that inflation would not decline over time.

Using reasoning different from that of Ackley, Okun, or Martin, Burns reached the same policy conclusion. There is much more to the monetary history of the 1970s than this paper can present. Burns's decision to ease policy at his very first meeting tells us much about the ordering of his priorities. Burns's Per Jacobsson lecture explains his reasoning, his interpretation of the vague guideline in the 1946 Employment Act, and the weights he applied to inflation and unemployment.

“Maximum” or “full” employment, after all, had become the nation's major economic goal—not stability of the price level... Even conservative politicians and businessmen began echoing Keynesian teachings. It therefore seemed only natural to federal officials charged with economic responsibilities to respond quickly to any slackening of economic activity...but to proceed very slowly and cautiously in responding to evidence of increasing pressure on the nation's resources of labor and capital. Fear of immediate unemployment—rather than fear of current or eventual inflation—thus came to dominate economic policymaking. (Burns, 1987, p. 691)

Missing from Burns's statement and from the rest of his lecture is any reference to the independence of the central bank. Policy coordination

and central bank independence were in conflict. As many central banks learned from the 1970s experience, the conflict arose from the difference in the weights they must assign to inflation and employment if their countries are to realize both high employment and low inflation. Politicians elected for four- or five-year terms put much more weight on employment—jobs, jobs, jobs—than on a future inflation. Central bankers are given longer terms and operational independence to increase the weight they place on longer-term consequences of policy actions; the Federal Reserve failed to do so. Inflation fell after the Federal Reserve abandoned coordination and accepted its responsibility to maintain the value of money. Once the public became convinced that the Federal Reserve would persist despite unemployment rates above 10 percent and short-term interest rates near 20 percent, anticipations changed. That took until 1984-85, the year when 10-year Treasury bonds reached a peak (13.8 percent). The economy had recovered with annual CPI inflation at 4 percent or less.

This outcome, in broad outline, would not have surprised Arthur Burns. He recognized that

[v]iewed in the abstract, the Federal Reserve System had the power to abort the inflation at its incipient stage fifteen years ago [1964] or at any later point, and it has the power to end it today [1979]. At any time within that period, it could have restricted the money supply and created sufficient strains in financial and industrial markets to terminate inflation with little delay. It did not do so because the Federal Reserve was itself caught up in the *philosophic and political* currents that were transforming American life and culture. (Burns, 1987, p. 692; emphasis added)

Burns does not appeal to mistakes, bad luck, or misinformation. He appeals to philosophical and political beliefs.²¹ Unlike Martin, who had

²¹ Burns recognizes “errors of economic or financial judgment,” calls them significant, and cites the consensus view in the 1960s and early 1970s that “an unemployment rate of about 4 percent corresponded to a practical condition of full employment” (Burns, 1987, p. 693).

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more limited understanding of what had to be done, Burns knew “in the abstract” what was required. He was unwilling, or believed the Federal Reserve would be unable, to carry through an anti-inflation program that imposed heavy costs. He dismissed gradualism that spread the costs over five years or more as unlikely to succeed.

[T]he very caution that leads politically to a policy of gradualism may well lead also to its premature suspension or abandonment in actual practice... That has happened in the past, and it may happen again. (p. 697)

Lacking a political consensus, Burns allowed inflation to continue and increase. And he erred in treating the 1973-74 oil shocks as a recession that called for more stimulus. That error, too, brought higher inflation.

CONCLUSION

Martin’s beliefs, the absence of a relevant theory, errors, and institutional arrangements explain why inflation started. The first two eventually changed, but inflation continued, so the reasons inflation continued are separate from the reasons it started. Two main institutional arrangements contributed to inflation in the 1960s.

First, even-keel policy caused the Federal Reserve to delay taking appropriate policy action, sometimes for months. During even-keel periods, usually lasting for two to four weeks, the Federal Reserve often permitted large increases in reserve growth that it did not subsequently remove. It is, of course, true that the System could have prevented the inflationary impact. The Treasury failed to do so because the cost of reducing reserves (or reserve growth) always seemed large. It could have eliminated even-keel policy by auctioning securities, as it eventually did.

Years later, Chairman Arthur Burns accepted the importance of even-keel policies for the beginning and continuation of inflation.

While the Federal Reserve always would accommodate the Treasury up to a point, the charge could be made—and was being

made—that the System had accommodated the Treasury to an excessive degree. Although he was not a monetarist, he found a basic and inescapable truth in the monetarist position that inflation could not have persisted over a long period of time without a highly accommodative monetary policy. (FOMC, Minutes, March 19, 1974, pp. 111-12)

Second, Martin’s acceptance of policy coordination with the administration prevented the Federal Reserve from taking timely actions and contributed to more expansive policies than were consistent with price stability. The System delayed acting in 1965 despite Martin’s early warnings about inflation, and it eased policy in 1968 to coordinate with fiscal restriction. Despite well-known arguments from the permanent-income hypothesis, Arthur Okun and the Board’s staff expressed concern about fiscal overkill. Martin had promised President Johnson that passage of the temporary tax surcharge would lower interest rates. The Board moved to ease policy by encouraging reductions in the discount rate against the wishes of most of the Reserve Bank presidents. Output continued to rise and unemployment to fall. By December, the annual rate of CPI increase was 4.6 percent, 1.8 percentage points higher than a year earlier. The unemployment rate was 3.4 percent, the lowest since 1951-53. Monetary base growth for the year reached 7.15 percent. Martin said: “[T]he horse of inflation not only was out of the barn, but was already well down the road” (FOMC, Minutes, December 12, 1967, p. 98).

Martin acknowledged the error in easing policy. Reversing the error proved costly. As Okun eventually recognized, we could not “get back to where we were in 1965, the good old days... That’s exactly what we thought would happen. That’s exactly what didn’t happen” (Hargrove and Morley, 1984, p. 308).

The Nixon administration had a different analytic framework. It accepted the vertical long-run Phillips curve and paid attention to money growth. It chose a gradualist policy and, in its internal memos, was willing to tolerate an unemployment rate as high as 4.5 percent. By the end of the 1969-70 recession, the unemployment rate

reached 6 percent, with annual CPI inflation of 5.4 percent.

Administration economists urged faster money growth to reduce unemployment. Arthur Burns, the new Chairman of the Board of Governors, convinced himself that inflation could not be reduced at a politically acceptable unemployment rate. He told President Nixon that “Wage and price decisions are now being made on the assumption that governmental policy will move promptly to check a sluggish economy” (Burns, June 22, 1971, p. 2). He also blamed cost-push factors, the power of labor unions, and welfare programs, along with expectations that inflation would persist. He favored controls or guideposts to break expectations. As the 1972 election approached, President Nixon accepted that advice. The administration chose political benefit over economic fundamentals.

Inflation continued because of the unwillingness of policymakers to persist in a political and socially costly policy of disinflation. During the 1960s and after, there was little political support for an anti-inflation policy in Congress and none in the administration if it required unemployment much above 4 percent. Polling data show that inflation was not named by many people as “the most important problem facing the country.” The number of respondents who considered inflation to be the most important problem never went above 14 percent. And during the 1970s, that percentage was always lower. Often, inflation came fourth or fifth on the list of most important problems.²² Without political support, the Federal Reserve was back in a position similar to that of 1946-50. It had greater independence on paper; it had not committed to maintain interest rates at or below a fixed ceiling as in 1942-50. The unemployment rate functioned in much the same way, however. It limited the extent to which the System could persist in a policy to end inflation or reduce it permanently. Soon after unemployment rose, the administration and the Federal Reserve shifted their operations and goal from lowering inflation to avoiding or ending recession and restoring full employment.

²² I am greatly indebted to Karlyn Bowman of the American Enterprise Institute for retrieving the Gallup data.

Andrew Brimmer, a Board member from 1966 to 1974, explained that employment was the principal goal: “Fighting inflation, checking inflation was the second priority” (Brimmer, 2002, p. 22). No one ever took an explicit vote to order these priorities, but the decisions taken at critical times support Brimmer’s interpretation.

Reversals had lasting effects. Inflation fell quickly in 1966-67, without a recession but with major disruption of the housing market and strident opposition from the politically powerful thrift industry. The public learned from this attempt to reduce inflation that anti-inflation actions did not last once unemployment (or other costs) started to rise. The policy focus then shifted, reinforcing the public’s growing belief that inflation would continue and even increase. These beliefs made it harder for the Federal Reserve to persuade the public that it would persist with anti-inflation actions the next time it tried.

The next time was 1969-70. A new administration was in power. The principal economic policymakers did not subscribe to the idea of a permanent trade-off between unemployment and inflation. They accepted the logic of Milton Friedman’s (1968) analysis showing that any reduction in unemployment achieved by increasing inflation was temporary. It persisted only as long as the inflation was unanticipated. But, the public and Congress were unwilling to accept the temporary increase in unemployment that would substantially lower or end inflation. Officials learned subsequently that, by refusing to pay the costs of transition to lower inflation, they increased the costs they would face subsequently by reinforcing beliefs that the public held.²³ They called this mixture of inflation and unemployment “stagflation” and found it puzzling and mysterious because they ignored the anticipations that the policy actions fostered.

²³ I suspect that at least some of them would have paid these costs if they would not go on too long. By the time they generally recognized that their policy was working very slowly, the presidential election was less than two years away. President Nixon was not inclined to sacrifice his second term to end inflation and probably not convinced that his advisers and the Federal Reserve could deliver. He believed that he lost the 1960 election because of rising unemployment and had no interest in repeating the experience.

Once inflation became entrenched, it required a more persistent commitment to end it. Martin, the Federal Reserve, and administration economists were aware of the cost paid to end a modest inflation after 1958. After four years of stable prices, why did they let inflation continue after it returned?

Bad luck contributed. Growth of output slowed after 1966, just as the money growth rate increased. Many officials continued to believe that higher growth would return. Other beliefs played a larger role. Some of the same factors that contributed to the start also contributed to persistence. Until the Treasury began to auction notes and bonds after 1970, even-keel operations contributed to inflation and made disinflation difficult.²⁴ George Mitchell, a member of the Board from 1961 to 1976, told Congress that if the Treasury sold short-term debt to the banking system “we have to supply reserves to the banking system...The success of this operation depends on how much pressure the banking system is under. If it is not under much pressure, it would continue to hold the securities and therefore the money supply would rise” (Joint Economic Committee, 1968b, p. 134). He did not say that if banks were under pressure they would sell the securities and make loans.

At the same hearing, Senators tried to get the Federal Reserve to control money growth within a range of 2 to 5 percent. Mitchell denied that money growth was excessive.

Senator [Jack] Miller. I have heard criticisms of the Federal Reserve Board for being responsible for the inflation, as a result of the excessive expansion of the money supply...

Mr. Mitchell...Our conviction is that we have not overused this tool.

Senator Miller. If you have not overused the tool, then where does the inflation come from?...

Mr. Mitchell. I think it really comes from the government deficit. (p. 135)

Later in the same hearing, Senator William Proxmire questioned Mitchell about the procyclical behavior of the money stock, citing declines in four postwar recessions. Mitchell would not accept the conclusion (p. 140). Martin, like Mitchell and many others, claimed that budget deficits were the principal cause of inflation. At times, the statement of this belief suggests that the inflationary effect of the deficit depends only on the size of the deficit and is independent of deficit finance and money growth. Experience in the 1960s and 1980s can be looked on as an experiment that tests this proposition in a simple, direct way. The much smaller budget deficits of the 1960s occurred with rising inflation rates, and the larger deficits of the 1980s accompanied falling inflation rates. A major difference was that the Federal Reserve did not believe it was obliged to finance the 1980s deficits, and it did not do so. Neglecting or ignoring the effects of policy actions on money growth and inflation was a major error in the 1960s and 1970s.

Federal Reserve decisions in the Martin era were made every three weeks. Much time was spent on what had happened or what might happen before the next meeting. There is no evidence that the Board or the FOMC had an organized way of thinking about the more distant future, as senior staff recognized (Axilrod, 1970; Pierce, 1980; and Lombra and Moran, 1980). Until 1965-66, Chairman Martin followed the Riefler rule that prohibited forecasts. When forecasts began, they often had large errors, discrediting them. Also, the members of the Board and the FOMC did not have a common framework or way of thinking about monetary policy. Neither Martin nor Burns made any effort to develop an agreed-upon way of thinking about how their actions influenced prices, employment, and the balance of payments. Sherman Maisel argued frequently for a more systematic approach, without much success. The members did not agree on elementary propositions.

Even if these problems had been resolved and a common framework developed, as Burns (1987) notes, the absence of political and popular support would likely have prevented the System from continuing decisive action. A more appro-

²⁴ Brimmer (2002, pp. 25-26) did not recall any discussion about changing even-keel policy.

appropriate, common framework would have avoided the error in 1968, when the Federal Reserve eased policy and increased the inflation rate, because it accepted the Keynesian claim that the temporary surtax was “fiscal overkill.” But it is also true that the Johnson administration and the Federal Reserve were willing to undertake anti-inflation monetary policy only after the 1968 election.

Martin believed he could maintain Federal Reserve independence while coordinating policy actions with the administration. Although he warned about inflation in 1965, he encouraged no action against it until late in the year because he hoped that President Johnson would raise tax rates instead. Three years later, he eased policy to offset the surtax, a step that he later recognized as an error. Some of his senior staff agreed.²⁵

Martin was not alone in these errors. He had the support of most of his Board and much of the academic profession. He made little effort to lead the Federal Reserve away from the coordinated policy. And there is no evidence of coordination working in the opposite direction—administration policy adjusting to support the Federal Reserve’s responsibility for inflation.²⁶

Policy coordination was not the only error in 1968. Administration and Federal Reserve forecasts attributed a powerful effect to the \$10 billion temporary tax surcharge. They could have known better. Economic analysis had established that the main effect of a temporary surcharge would be on saving. Franco Modigliani testified to that effect a month before the surcharge passed.

If the people know that taxes are going to be put up for just 3 or 6 months, chances are that there would be little change in their consumption because they would

look forward to being able to recoup later. Therefore, I think attention should be given to finding measures that have the right incentives. (Modigliani, 1968, p. 63)

Partly as a consequence of policy coordination, but also in response to political and public pressure, the Federal Reserve accepted responsibility for housing and income distribution. Although it could not do much about the latter except to reduce reserve requirements for small banks, it moderated its actions to prevent sharp reductions in homebuilding. Adding homebuilding to a list of objectives that included sustained growth, full employment, low inflation, and international balance almost ensured failure to meet most or all of the objectives.

When Burns replaced Martin, President Nixon recognized the independence of the Federal Reserve and then added, “I respect his independence. However, I hope that independently he will conclude that my views are the ones he should follow” (Wells, 1994, p. 41).

This was a forecast of the pressure the President and his advisers kept up. Burns, like Marriner Eccles before him, wanted to be a key presidential adviser while he was Chairman. Possibly to satisfy the President’s pressures for lower unemployment or because he shared the President’s priority, Burns maintained relatively high money growth and in 1970-71 frequently and forcefully argued for a wage-price board to slow inflation by exhortation. More likely, as he claimed repeatedly, he believed that monetary policy could not reduce inflation. His Per Jacobsson lecture (Burns, 1987), from which I quoted, shows that he recognized that the inflation was the result of overly expansive monetary policy but there was little support in the administration, Congress, or the general public for the consequences of the policy that would be required.

Burns resented White House interference and pressure, but he did not often resist it. He took over a Board most of whose members had been appointed by Presidents Kennedy and Johnson. To varying degrees, a majority preferred to continue inflation rather than increase unemployment. If inflation could be reduced at an unemployment rate of 4.25 or 4.50 percent, they would accept it.

²⁵ “Question: Do you think it was a mistake for the Fed to be that closely involved in administration policy? Answer: Yes, because you become less objective” (Axilrod, 1997, pp. 17-18).

²⁶ The House Banking Committee asked economists and policy officials for their opinions on mandating policy coordination, a policy rule, or the present regime. Replies came from 69 respondents. Most (42) favored a coordinated program; 13 favored a monetary rule of some kind; 14 favored no change. I interpret that to mean that the group members did not oppose coordination but did not want it made mandatory. Chairman Okun of the Council of Economic Advisers voted for mandatory coordination. Chairman Martin and Secretary Fowler voted for the status quo (Joint Economic Committee, 1968a, p. 8).

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But they did not want any higher unemployment rate. There was a minority that wanted more restrictive policy and more action against inflation. The few consistent anti-inflationists, such as Hayes, Brimmer, and Francis, were exceptions. They gained support when inflation rose, but only until unemployment rose above the level the majority would accept. Brimmer (2002, p. 23) explained at the time that if fiscal policy was the way it was, you would have to tighten monetary policy to the point of inducing a recession. He added that the Federal Reserve “didn’t promise a tradeoff [of easier monetary policy]...if you get a tax bill but we came pretty close to it” (p. 23).

Many other reasons have been used to explain the persistence of inflation: The use of money market targets, failure to distinguish between real and nominal interest rates, and neglect of monetary aggregates (Mayer, 1999; Bordo and Schwartz, 1999; McCallum, 1999; and Hetzel, 2003). Nelson (2003) summarizes this literature and documents the importance of neglecting money—the monetary policy neglect hypothesis—both in Britain and the United States.

Analytic errors contributed to inflationary policy. Bad analysis and flawed theoretical understanding can lead to major policy mistakes, as in the Great Depression. The Federal Reserve made no effort to achieve analytic clarity on such basic issues as the causes of inflation. Several of its members doubted that it was worth the effort. They did not respond to Darryl Francis’s efforts to explain that (i) in the long run, inflation was caused by money growth in excess of real growth and (ii) Federal Reserve policy produced excess money growth because it did not permit interest rates to increase enough. Similarly, they did not respond positively to Maisel’s efforts to adopt a consistent policy framework.

Three morals: You cannot end inflation (i) if you don’t agree on how to do it, (ii) if you and the public think it is less costly to let it continue, and (iii) if you are overly influenced by politics. The Federal Reserve was better able to control inflation when the President was named Eisenhower or Reagan instead of Johnson, Carter, or Nixon.

REFERENCES

- Ackley, Gardner. *Macroeconomic Theory*. New York: Macmillan, 1961.
- Ackley, Gardner. Oral History II, Johnson Papers, LBJ Library. Austin, TX.
- Anderson, Richard G. and Rasche, Robert H. “Eighty Years of Observations on the Adjusted Monetary Base.” Federal Reserve Bank of St. Louis *Review*, January/February 1999, 81(1), pp. 3-22.
- Axilrod, Stephen H. “The FOMC Directive as Structured in the Late 1960s: Theory and Appraisal.” Unpublished manuscript, Board of Governors of the Federal Reserve System, January 28, 1970, pp. 1-63.
- Axilrod, Stephen H. Interview with the author. June 26, 1997.
- Barro, Robert J. and Gordon, David B. “A Positive Theory of Monetary Policy in a Natural Rate Model.” *Journal of Political Economy*, August 1983, 91(4), pp. 589-610.
- Bernstein, Irving. *Guns or Butter: The Presidency of Lyndon Johnson*. New York: Oxford University Press, 1996.
- Board of Governors of the Federal Reserve System. Minutes. Washington, DC: various dates.
- Board of Governors of the Federal Reserve System. *Annual Report, 1965*. Washington, DC: 1965.
- Bordo, Michael D. and Schwartz, Anna J. “Monetary Policy Regimes and Economic Performance: The Historical Record,” in John B. Taylor and Michael Woodford, eds., *Handbook of Macroeconomics*. Amsterdam: North Holland, 1999.
- Brimmer, Andrew F. Interview with the author. February 26, 2002.
- Bryan, Malcolm. Letter to Woodlief Thomas. Records. Washington, DC: Board of Governors of the Federal Reserve System, January 14, 1961.

- Burns, Arthur F. Letter to President Lyndon B. Johnson. Burns papers, Box B-B90. Gerald R. Ford Library, June 22, 1971.
- Burns, Arthur F. "The Anguish of Central Banking." *Federal Reserve Bulletin*, September 1979, pp. 687-98; reprinted September 1987, 73(9), pp. 689-98.
- Califano, Joseph A. Jr. Telegram to President Lyndon B. Johnson. White House Central File, Box 50. LBJ Library. Austin, TX: November 29, 1965.
- Califano, Joseph A. Jr. *The Triumph and Tragedy of Lyndon Johnson*. College Station, TX: Texas A&M University Press, 2000.
- Clarida, Richard; Galí, Jordi and Gertler, Mark. "Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory." *Quarterly Journal of Economics*, February 2000, 115(1), pp. 147-80.
- Clay, George. Letter to Ralph Young. Records. Washington, DC: Board of Governors of the Federal Reserve System, November 13, 1961.
- Collard, Fabrice and Dellas, Harris. "The Great Inflation of the 1970s." Working Paper 336, European Central Bank, April 2004.
- Council of Economic Advisers. *Annual Report*. Washington, DC: Government Printing Office, 1964.
- Council of Economic Advisers. *Annual Report*. Washington, DC: Government Printing Office, 1965.
- Cukierman, Alex and Meltzer, Allan H. "A Theory of Ambiguity, Credibility, and Inflation under Discretion and Asymmetric Information." *Econometrica*, September 1986, 54(5), pp. 1099-28.
- Deming, Frederick L. Letter to Ralph Young. Records. Washington, DC: Board of Governors of the Federal Reserve System, November 24, 1961.
- Feldstein, Martin. "Inflation, Tax Rules, and Investment: Some Econometric Evidence." *Econometrica*, July 1982, 50(4), pp. 825-62.
- Fischer, Stanley. "Towards an Understanding of the Costs of Inflation: II." *Carnegie-Rochester Conference Series on Public Policy*, Autumn 1981, 15, pp. 5-41.
- Federal Open Market Committee. Minutes. Washington, DC: Board of Governors of the Federal Reserve System, various dates.
- Fowler, Henry. Memo to President Lyndon B. Johnson. Confidential Files, Box 41. LBJ Library. Austin, TX: October 6, 1965.
- Friedman, Milton. "The Role of Monetary Policy." *American Economic Review*, March 1968, 58(1), pp. 1-17.
- Gordon, Robert J. "Can the Inflation of the 1970s Be Explained?" *Brookings Papers on Economic Activity*, 1977, 1, pp. 253-77.
- Hargrove, Erwin C. and Morley, Samuel A., eds. *The President and the Council of Economic Advisers*. Boulder, CO: Westview Press, 1984.
- Hayes, Alfred. Letter to Ralph Young. Records. Washington, DC: Board of Governors of the Federal Reserve System, November 3, 1961.
- Heller, Walter. "Monetary Policy." Papers. JFK Library. Boston, MA: March 2, 1964.
- Heller, Walter. Memo to President Lyndon B. Johnson. White House Central Files, Box 282. LBJ Library. Austin, TX: July 17, 1964.
- Hetzel, Robert L. "Arthur Burns and Inflation." Federal Reserve Bank of Richmond *Economic Quarterly*, Winter 1998, 84(1), pp. 21-44.
- Hetzel, Robert L. *The Monetary Policy of the Federal Reserve System: Analytics and History*. Unpublished manuscript, Federal Reserve Bank of Richmond. 2003.
- Johnson, Lyndon B. Recording of Telephone Conversation with Robert McNamara. Citation No. 9326, White House Series. LBJ Library. Austin, TX: December 20, 1965.
- Johnson, Lyndon B. *The Vantage Point*. New York: Holt, Rinehart and Winston, 1971.

Meltzer

- Joint Economic Committee. *Compendium on Monetary Policy Guidelines and Federal Reserve Structure*. Washington, DC: Government Printing Office, December 1968a.
- Joint Economic Committee. *Standards for Guiding Monetary Action*. Washington DC: Government Printing Office, May 8-16, 1968b.
- Knipe, James. Memo to William McChesney Martin Jr. Records. Washington, DC: Board of Governors of the Federal Reserve System, November 14, 1960.
- Kramer, Gerald H. "Short-Term Fluctuations in U.S. Voting Behavior, 1896-1964." *American Political Science Review*, March 1971, 65, pp. 131-43.
- Laidler, David and Parkin, Michael. "Inflation: A Survey." *The Economic Journal*, December 1975, 85(340), pp. 741-809.
- Lombra, Raymond and Moran, Michael. "Policy Advice and Policymaking at the Federal Reserve." *Carnegie-Rochester Conference Series on Public Policy*, Autumn 1980, 13, pp. 9-68.
- Lucas, Robert E. Jr. "Expectations and the Neutrality of Money." *Journal of Economic Theory*, April 1972, 4(2), pp. 103-24.
- Maisel, Sherman J. *Sherman J. Maisel's Diary*. Washington, DC: Board of Governors of the Federal Reserve System, various years.
- Maisel, Sherman J. *Managing the Dollar*. New York: Norton, 1973.
- Martin, William McChesney Jr. Letter to Wright Patman, in Federal Open Market Committee, Minutes. Washington, DC: Board of Governors of the Federal Reserve System, July 11, 1961.
- Martin, William McChesney Jr. Testimony, Joint Economic Committee, in Records. Washington, DC: Board of Governors of the Federal Reserve System, February 1, 1963.
- Martin, William McChesney Jr. Memo to President Lyndon B. Johnson. Confidential Files, Box 41, LBJ Library. Austin, TX: October 6, 1965.
- Martin, William McChesney Jr. "Martin papers," as cited by the Missouri Historical Society. St. Louis: May 8, 1987a.
- Martin, William McChesney Jr. Oral History. Missouri Historical Society. St. Louis: May 8, 1987b.
- Mayer, Thomas. *Monetary Policy and the Great Inflation in the United States: The Federal Reserve and the Failure of Macroeconomic Policy, 1965-79*. Cheltenham, UK: Edward Elgar, 1999.
- McCallum, Bennett T. "Recent Developments in Monetary Policy Analysis: The Role of Theory and Evidence." *Journal of Economic Methodology*, July 1999, 6(2), pp. 171-98.
- Meltzer, Allan H. *A History of the Federal Reserve*. Volume 1, 1913-51. Chicago: University of Chicago Press, 2003.
- Meltzer, Allan H. *A History of the Federal Reserve*. Volume 2. Chicago: University of Chicago Press (forthcoming).
- Modigliani, Franco. Testimony. U.S. Congress, Joint Economic Committee. Washington, DC: Government Printing Office, May 8, 1968, p. 63.
- Modigliani, Franco. "The Monetarist Controversy, or Should We Forsake Stabilization Policies?" *American Economic Review*, March 1977, 67(2), pp. 1-19.
- Nelson, Edward. "The Great Inflation of the Seventies: What Really Happened?" Unpublished manuscript, Federal Reserve Bank of St. Louis, 2003.
- New York Times*. December 6, 1965, p. 6.
- New York Times*. December 7, 1965, pp. 1, 74.
- Nordhaus, William D. "The Political Business Cycle." *Review of Economic Studies*, April 1975, 42(2), pp. 169-90.
- Okun, Arthur M. *The Political Economy of Prosperity*. Washington, DC: Brookings Institution Press, 1970.

- Okun, Arthur M. Oral History I, Johnson Papers, LBJ Library. Austin, TX.
- Orphanides, Athanasios. "Monetary Policy Rules Based on Real-Time Data." *American Economic Review*, September 2001, 91(4), pp. 964-85.
- Orphanides, Athanasios. "The Quest for Prosperity Without Inflation." *Journal of Monetary Economics*, April 2003, 50(3), pp. 633-63.
- Orphanides, Athanasios. "Monetary Policy Rules, Macroeconomic Stability, and Inflation: A View from the Trenches." *Journal of Money, Credit, and Banking*, April 2004, 36(2), pp. 151-75.
- Pierce, James L. "Comments on the Lombra-Moran Paper." *Carnegie-Rochester Conference Series on Public Policy*, Autumn 1980, 13, pp. 79-85.
- Romer, Christina D. and Romer, David H. "The Evolution of Economic Understanding and Postwar Stabilization Policy," in *Rethinking Stabilization Policy*. Kansas City, MO: Federal Reserve Bank of Kansas City, 2002, pp. 11-78.
- Sargent, Thomas J. *The Conquest of American Inflation*. Princeton, NJ: Princeton University Press, 1999.
- Sargent, Thomas J. "Commentary: The Evolution of Economic Understanding and Postwar Stabilization Policy," in *Rethinking Stabilization Policy*. Kansas City, MO: Federal Reserve Bank of Kansas City, 2002, pp. 79-94.
- Swan, Eliot. Letter to Ralph Young. Records. Washington, DC: Board of Governors of the Federal Reserve System, November 10, 1961.
- Taylor, John B. "An Historical Analysis of Monetary Policy Rules," in John B. Taylor, ed., *Monetary Policy Rules*. Chicago: University of Chicago Press, 1999.
- Tufte, Edward R. *Political Control of the Economy*. Princeton, NJ: Princeton University Press, 1978.
- Velde, Francois R. "Poor Hand or Poor Play? The Rise and Fall of Inflation in the U.S." Federal Reserve Bank of Chicago *Economic Perspectives*, First Quarter 2004, 28(1), pp. 34-51.
- Wells, Wyatt C. *Economist in an Uncertain World: Arthur F. Burns and the Federal Reserve*. New York: Columbia, 1994.
- Young, Ralph to FOMC, Attachment II. Records. Washington, DC: Board of Governors of the Federal Reserve System, September 6, 1961.

