# Learning about Policy from Federal Reserve History

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For much of the past 15 years, my assistants and I have been reading minutes and papers in the National Archives, the Board of Governors, and the New York Federal Reserve Bank. I owe a debt of appreciation to the Board's librarians, to the achivists at the New York bank, to my several assistants, and to many at the Fed who cooperated helpfully to make this project come to completion.[1] The result has now been published in two volumes of more than 2,000 pages. Volume 1 covers the 1913–1951 period and has been in print several years (Meltzer 2003). Volume 2, published in February, is in two parts: part one (Meltzer 2010a) covers the 1951–69 period, and part two (Meltzer 2010b) chronicles the 1970–86 period.

In this article, I discuss some principal findings from volume 2. The starting point is the 1951 Accord with the Treasury that permitted the long-term interest rate to rise above 2.5 percent. The closing point is the end of the Great Inflation in 1986.

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Volume 2 has two main themes. One is the Great Inflation. I discuss why it started, why it continued for more than 15 years, why it ended when it did, and why it has not returned, at least not yet. The second theme is the changing meaning of independence.

Much of my book is about policy errors and mistaken ideas. That is what makes the book so long. I let the principals make their arguments repeatedly to make clear that they believed in their reasons for acting as they did. Repetition reinforces my interpretations. Because I will talk about mistakes, let me start by saying a bit about achievements.

The United States is the world's main monetary power. The Federal Reserve presided over the transition from a local or regional system of financial institutions to the current leader of the world monetary system. It managed the transition from the gold standard through several alternatives to the present system, or non-system, of floating rates for principal currencies. It managed the transition from a monetary arrangement based on member bank borrowing and the real bills doctrine to the present system based on open market operations supposedly directed at the dual mandate. Traditional central bank secrecy proved incompatible with democratic openness, so the Federal Reserve has learned to be more open about its operations and now concerns itself with communications policy. In its 96 years, it has remained free of major scandal. And, from the 1920s on it has done pioneering research on monetary policy and has built not one, but many, dedicated and highly qualified research staffs at the Board and several of the regional banks.

After the mistakes that produced the Great Inflation, the Federal Reserve achieved the "Great Moderation." From the mid-1980s to about 2005, the United States experienced a long period of stable growth, low inflation, and short, mild recessions. These years are the best in Federal Reserve history. Unfortunately, the System did not continue the policies that achieved its greatest success.

On the opposite side of the ledger are major and minor mistakes, many of which were repeated. Some members recognized most and perhaps all of the main errors. The FOMC minutes record all the main criticisms that I make followed by my comment saying there was no response and no discussion. Recognition by FOMC members implies that at least some of the errors could have been prevented.

Reflecting convictions held by many in Congress and in several administrations, Federal Reserve policy gave greatest attention to

avoiding unemployment. It usually followed a lexicographic ordering that gave priority to employment. After most countries in western Europe restored currency convertibility for current accounts, the conflict between the goals of the Employment Act and Bretton Woods became apparent. The Federal Reserve treated the exchange rate as a secondary or tertiary consideration, mainly a problem for the Treasury. Its main error was to diligently pursue an agreement to expand world reserves (the Triffin problem) and ignore the more pressing issue of real exchange rate adjustment. In this, it cooperated with the Treasury. I limit discussion here to domestic policy and operations.

Errors such as the failure to urge auctions of Treasury security offerings, or the greater weight given to unemployment than to inflation, or the use of 4 percent as the full employment rate long after that rate rose, reflect both error and political pressure. Economists often treat monetary policy as not affected by politics. Models of optimal monetary policy have no role for politics. Perhaps they take this position because they equate Federal Reserve independence with freedom to take action and follow any chosen path. Alas, that is rarely true. The changing meaning of "independence" is one theme of my history.

## Independence

History, at least mine, tells a mixed story. In the postwar years, only part of Paul Volcker's period as chairman, 1979 to 1984, comes close to the textbook vision of independence. President Reagan appointed the majority of the Federal Reserve Board during Volcker's last years as chairman, and James Baker influenced those members. On one occasion, the Board voted 4 to 3 for a discount rate reduction that Paul Volcker opposed. And, as Treasury secretary, Baker chose an exchange rate policy that the Federal Reserve had to accept.

William McChesney Martin, Jr., defined Federal Reserve independence as "independence within the government, not independence of the government." His definition recognizes a political constraint. Martin said many times that Congress approves the budget and decides on the deficit. He thought and said the Federal Reserve had to help finance the deficit. This worked reasonably well during the Eisenhower and Kennedy presidencies when the budget was in surplus or the deficits relatively small. It produced high money

growth and rising inflation during the Johnson presidency, when deficits rose. Not deficits but Federal Reserve policy of financing deficits started and sustained the Great Inflation. My history gives many other examples of political influence on the Fed.

When President Nixon appointed Arthur Burns to chair the Federal Reserve, the president left no doubt about his view of Federal Reserve independence. He told Burns and the audience that he expected the Federal Reserve to independently decide to do what he wanted done. President Nixon promised to reduce inflation without a recession. His advisers warned him that this would not happen. President Nixon said that no president is defeated for reelection because of inflation, only because of unemployment.

Burns shared his conviction. In "The Anguish of Central Banking" (1987) he explained that the Federal Reserve should have reduced money growth after 1964. They couldn't, he said, because of the political commitment to the welfare state, and the power of labor unions and business monopolies. Burns gave that speech at the 1979 International Monetary Fund meeting in Belgrade. That was the meeting Paul Volcker left early to do what Burns said could not be done.

William Miller followed Burns as chairman. He knew very little about making monetary policy. His main contribution was negotiating an agreement with Congress to end Regulation Q ceilings. The Carter administration wanted a chairman who was more cooperative than Burns. Maintaining independence was not an important concern.

The Federal Reserve has much less independence than the European Central Bank because the government of the European Union has a much smaller role in monetary policy than the U.S. administration and Congress. Congress can change the rules under which the Federal Reserve operates, and it proposes to do so frequently. Federal Reserve officials are very aware of this limit on their actions. Economists cannot understand Federal Reserve policy if they ignore political influences.

Central bank independence became explicit under the gold standard. That standard constrained monetary policy and inflation expectations.[2] Unrestricted independence allowed the Federal Reserve to

[2]The gold standard or Bretton Woods also anchored inflationary expectations in the years prior to about 1965. This point is often neglected in the Phillips curve literature.

finance the Great Inflation because Congress at the time gave much greater concern to unemployment than to inflation. I believe Congress should restore independence but restrict Federal Reserve actions to a quasi-rule such as the Taylor Rule. If the FOMC decides to depart from the quasi-rule, it should offer both an explanation and resignations. The administration can accept the explanation or the resignations. That would better align responsibility and authority.

## Some Principal Errors

Federal Reserve minutes record major errors. The Federal Reserve has never agreed on a framework for monetary policy. FOMC minutes or transcripts show many divergent views. Although the staff produces forecasts of future outcomes, the FOMC neither accepts nor rejects the staff's work. Most of the policy discussion in 1951–1986 is about near-term actions and in the 1970s and after 1982 whether to change the nominal federal funds rate or reserves by one-eighth or one-quarter of a percentage point. The real rate is not mentioned. Most members did not discuss the medium- or longer-term consequences of their actions. The Volcker disinflation is an exception that succeeded by concentrating on the medium-term objective of lower inflation.

In the February 14, 1972, FOMC Minutes, Sherman Maisel recognized the absence of any statement about medium-term implications:

> First, the FOMC did not have a clear enough picture of the relationship between changes in operating variables … and changes in the intermediate monetary variables. Second, there was insufficient understanding of the relationship between changes in the intermediate variables and changes in the economy.… Third, there tended to be insufficient discussion of developments with respect to the demand for money.… Finally, the time period on which the Committee focused in its policy deliberations was often too short. When the Committee set its targets for intermediate variables for only a month or two ahead, it was dealing with a period in which current operations could not have much effect, and it was not taking into account the longer-run implications of its decisions [Board of Governors 1972: 5; quoted in Meltzer 2010b: 804].

Maisel's view received little support from most other members and opposition from the president of the Federal Bank of New York, Alfred Hayes, who asserted: "It had not been demonstrated that total or nonborrowed reserves had any strong or direct effects on the ultimate goals of the economy" (Board of Governors 1973: 21). His statement seems to deny any link between money and economic activity and prices, a strange position for a central banker.

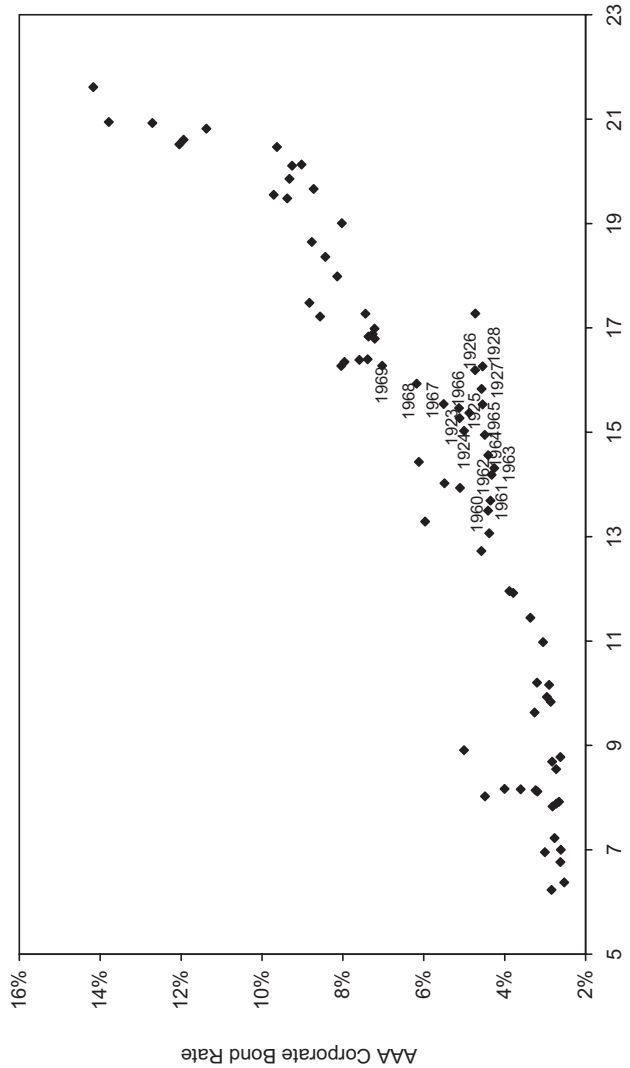
Later, the FOMC set a target for some measure of reserves or money growth, but it did not permit interest rates to change enough to achieve the target. I am puzzled by these reported failures to achieve a specified target for the aggregates. The members eventually recognized that their decision to limit interest rates changes caused inflation. Yet, they kept repeating that they would not permit more interest rate variability. Their decision protected the money market from variability at the cost of failing to protect the public from inflation. Eventually, the Volcker FOMC stopped short-term interest rate control and claimed that the target was nonborrowed reserves. To avoid blame for the increase in interest rates, the market gained more freedom to change short-term interest rates. At the time, no one believed that rate would rise to 20 percent.

The staff usually explained failure to control reserves by claiming that the demand for money shifted. It never admitted that its interest rate target was inconsistent with its reserve target. When challenged occasionally by FOMC members, the staff could not support its explanation.

A repeated theme claims that the demand for money and monetary velocity are unstable. The only truth to this claim comes from overreliance on quarterly data and concentration on the immediate or near-term while ignoring longer-term effects. Figure 1 plots monetary base velocity (using the Andersen-Rasche St. Louis base) against the corporate bond rate for 78 annual observations from 1919 to 1987. The plot looks the way monetary theory says it should. There is little evidence of the alleged instability that is commonly made by members and staff.

I highlighted the years 1925 to 1928 and 1961 to 1969 to illustrate strong evidence of stability; when bond rates returned in the 1960s to the same range as in the 1920s, velocity returned to that range also. And after base velocity rose to new heights in the Great Inflation, shown by the points at the far right, it returned along the same path during the disinflation. At annual values, Figure 1 shows

FIGURE 1
BASE VELOCITY VERSUS AAA CORPORATE BOND RATE: 1919–97




SOURCE: Meltzer (2010b: 1126).

considerable stability, not the instability claimed repeatedly by the Federal Reserve. The main exception is some years of the Great Depression at the far left in Figure 1. I conclude base money velocity is a neglected indicator of medium-term policy influence and public decisions.

Why are my findings about money and velocity so different from Federal Reserve staff claims? The principal reason is that their short-term focus contrasts with my focus on the medium term. Their neglect of the medium term misleads them about the role and relevance of money growth. For every cyclical downturn from the 1920s through the 1980s, my history compares real base growth to the real long-term interest rate using the expected inflation rate instead of the actual rate after the expected rate became available. Figures 2 and 3 show two of the comparisons. In the 1953–54 cycle, real base growth falls until just before the cycle trough in May 1954, then it rises. The real interest rate falls during the decline and rises during the recovery, a pro-cyclical movement that misleads. Real base growth falls again in the months before the cyclical peak in August 1957. Real interest rates fall also. According to base growth, monetary policy tightened. Real interest rates eased.

Real base growth falls before cyclical troughs and rises before the peaks in every cycle from the 1920s to the 1980s. Real interest rates show much less consistency. The Federal Reserve never made use of this information at least in part because of its short-term focus and its neglect of the importance of money growth.

Muth (1960) developed an analysis of permanent and transitory disturbances. Economic life has many disturbances of both kinds. Some recent examples of permanent changes include the end of the Soviet Union, the Russian default, failure of Long-Term Capital, and the decline in housing prices. Neither Federal Reserve models nor the financial markets recognize that some changes persist; they are permanent changes in the environment. Existing risk models misstate risk.[3] This has created large errors at times. The Federal Reserves' near-term, short focus contributes to this error. Permanent changes appear in the "fat tails" of distributions.

The Kennedy Council of Economic Advisers introduced two major errors. First, they claimed that our market economy generated

[3]Brunner, Cukierman, and Meltzer (1980) develop a rational model with permanent and transitory disturbances.

FIGURE 2

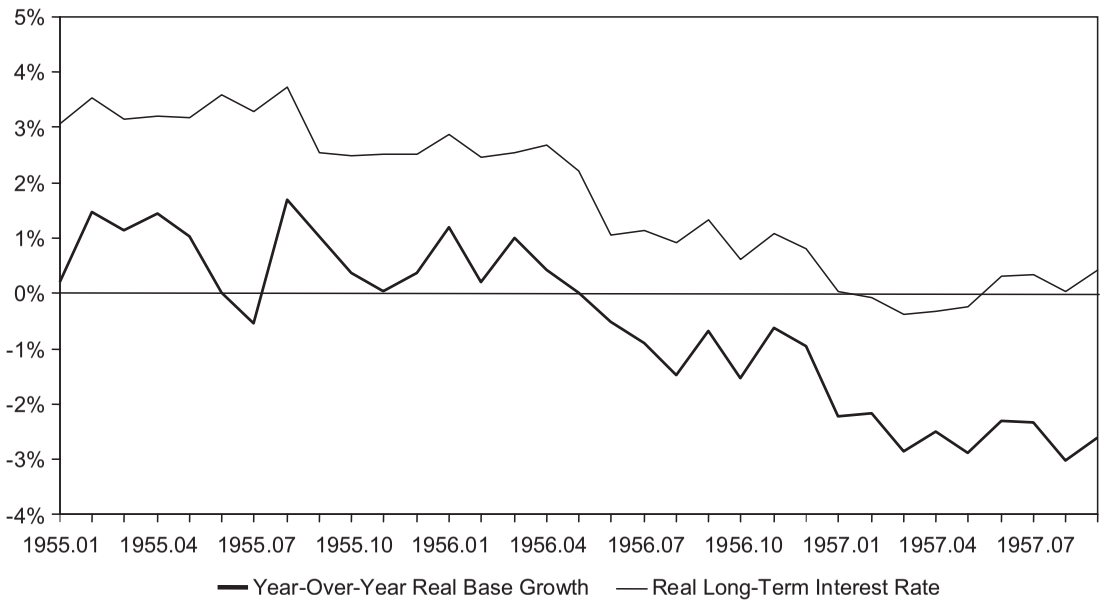
REAL BASE GROWTH VERSUS REAL LONG-TERM INTEREST RATE: JANUARY 1953–DECEMBER 1954


NOTE: Real base growth measured year-over-year; long-term interest rate measured as yield on Treasury securities with maturity greater than 10 years.

SOURCE: Meltzer (2010a: 106).

FIGURE 3

Real Base Growth versus Real Long-Term Interest Rate: January 1955–September 1957




Note: Real base growth measured year-over-year; long-term interest rate measured as yield on 10-year Treasury bonds.

Source: Meltzer (2010a: 159).

inflation before it reached full employment. The Council proposed and implemented price and wage guidelines to prevent what it considered excessive wage and price increases. No one explained, or even discussed, how control of a small subset of individual prices could prevent persistent changes in the rate of price change. This same error was central to Arthur Burns's plea for price guidelines and later President Nixon's controls. The same error reemerged in the Carter presidency. No one asked why the money the public saved because some prices were controlled would not be spent on something else, or discussed why changing a few relative prices could not prevent inflation—the rate of change of a broad index.

Proponents of guideposts and controls often claimed that corporations and labor unions exploited their monopoly power to raise prices. Burns used this reasoning repeatedly. He never explained why this power resulted in a *maintained* rate of price increase (inflation) and not a one-time increase in price level or a change in relative prices that exploited the monopoly power.

The confusion of price level, or relative price changes, and inflation—a maintained rate of change—was present also in the Federal Reserve's response to the oil price increases in 1973 and 1979. These were large relative price changes. Reported price index numbers rose for a time but returned to their underlying rate of increase if policy remained unchanged. Unfortunately, the Federal Reserve, at the time, did not distinguish between inflation and a relative price change, so it attempted to reverse the increase. This added to the social cost. By 2008, the Federal Reserve had learned to make the distinction, so it did not repeat the error and it began to exclude volatile relative price changes from its measure of "core inflation."

Reliance of the Phillips curve as a model of inflation was the second major problem introduced by the Kennedy Council of Economic Advisers. One error was a belief that policy could gain a permanent reduction in the unemployment rate by choosing to accept more inflation. Friedman (1968) pointed out the error. Another error that persists to the present is the use of the Phillips curve to forecast inflation. Orphanides (2001) showed that inflation forecasts persistently underestimated the inflation rate. Subsequent research established that it was a mistake to rely on available measures of the output gap because trend or full employment output varied.

Orphanides's evidence raises a question. Why did FOMC members in the 1970s rely on a forecast that persistently underestimated

inflation? The answer in my history is that the politics of that period, especially during the Nixon and Carter presidencies, put greatest weight on preventing or reducing unemployment. They worried about inflation, but they mainly acted against unemployment. They used a lexicographic ordering with unemployment most important. We seem to be repeating that error now.

Policy changed in 1979 and 1980. When President Carter interviewed Paul Volcker, Volcker told him that he would act more forcefully against inflation than his predecessors had done. Carter said, "That's what I want." That was a major change. Prior to that the Carter administration was not known for an effective anti-inflation policy. It relied mainly on guideposts and exhortation. It changed, I believe, because in 1979 and 1980, opinion polls showed that the public considered inflation the most important economic problem. The public wanted to see inflation reduced, and they soon elected Ronald Reagan with a commitment to do that.

The public had not shown as much concern earlier. They changed, and the politics of controlling inflation changed with them. Chairmen of the banking committees and other members of Congress supported the Federal Reserve's efforts to reduce inflation. I believe there is an important lesson from that experience. The only successful effort to disinflate during the Great Inflation became possible only when the public opinion polls showed public support.

As early as April 1978, Vice President Mondale sent a note to President Carter to tell him that his rating on managing the economy had fallen from 47 percent to 24 percent. Mondale explained the change as a shift in public concern from unemployment to inflation. Months after appointing Volcker, President Carter yielded to congressional Democrats who urged him to use credit controls instead of high interest rates. The Federal Reserve reluctantly put on mild credit controls. The response demonstrates public concerns. Although credit cards were not controlled, many people cut their cards and mailed them to the Federal Reserve or the president. The largest quarterly fall in real GDP followed. The Federal Reserve ended credit controls in July and increased money growth. Despite urgings from his staff President Carter did not interfere with the inflation control policy again.

FOMC minutes show that two relatively successful Federal Reserve chairmen did not rely on Phillips curve forecasts. The Volcker years discussed in chapters 8 and 9 of my history contain

many statements by Volcker praising the staff but remarking that their inflation forecasts were inaccurate and unreliable. In a television interview in 1980, Volcker was asked about the tradeoff between unemployment and inflation. His reply denied that the main implication of the Phillips curve was useful for policy:

> My basic philosophy is over time we have no choice but to deal with the inflationary situation because over time inflation and the unemployment go together. … Isn't that the lesson of the 1970s? We sat around [for] years thinking we could play off a choice between one or the other. … It had some reality when everybody thought prices were going to be stable. … The growth situation and the employment situation will be better in an atmosphere of monetary stability than they have been in recent years [quoted in Meltzer 2010: 1034].

Volcker's major policy change was to shift the weights the Federal Reserve put on inflation and unemployment by giving much more weight to reducing inflation. At first, financial markets did not show signs of belief that the change would persist once unemployment rose. Markets recalled that several prior promises to reduce inflation ended after unemployment rose. The Volcker Federal Reserve reduced skepticism by *raising* the federal funds rate when the unemployment rose to 8 percent or more in spring 1981. Expected inflation measures soon after declined.

Markets remained skeptical during the recovery. Until 1985, real rates (adjusted for expected inflation) remained from 5 to 7 percent. Investors expected inflation to return. This experience suggests one reason for the long lag between changes in money growth and its absorption into prices. Part of the lag measures the time it takes to convince the public that the Federal Reserve will persist.

Alan Greenspan also explained that he did not find the staff's Phillips curve forecasts useful. "The natural rate of unemployment, while unambiguous in a model, and useful for historical analyses, has always proved elusive when estimated in real time. The number was continually revised and did not offer a stable platform for inflation forecasting or monetary policy" (quoted in Meltzer 2010: 1034). The staff continues to rely on Phillips curve forecasts and some current members of the Board tell the public that inflation poses little danger when unemployment remains high. They neglect the fact that

from 1933 to 1937 broad based price indexes rose 12 percent with unemployment rates of 17 percent or higher. And the wholesale price index rose much more.

A major cost of the greater emphasis on avoiding unemployment and reducing it when it rose was that the public learned that despite the rhetoric about commitment, the Federal Reserve would not persist in disinflation policy. Pressures from the administration, Congress, the business community, labor unions, and the public ended the commitment and the disinflation policy. Some price indexes fell to zero after a few months of disinflation in 1966. The Federal Reserve came under pressure because housing starts fell, and municipal bond yields and unemployment rose. The Federal Reserve reversed course, and inflation soon after increased.

By the early 1970s, many of the public recognized that the Federal Reserve's efforts to disinflate would be abandoned once the unemployment rate rose to 6.5 or 7 percent. Workers accepted short periods of unemployment instead of reducing wage rates. Producers accepted reduced sales instead of reducing prices. Investors demanded premiums for inflation in long-term bonds. The FOMC and others found "stagflation" puzzling. Arthur Burns and many others concluded that the pricing system no longer worked as it had. For Burns and many others, the solution was formal or informal price and wage controls. After the inflation rate fell to 2 to 3 percent in the 1980s, the problem called "stagflation" disappeared. This was an elementary set of errors. It ignored expectations based on observed policies and it failed to distinguish between price level changes and maintained rates of price change. With expected inflation low, many wages have fallen sharply during the current recession.

In the March 1960 FOMC minutes, Malcolm Bryan, president of the Federal Reserve Bank of Atlanta, urged the FOMC to control reserve growth and give more attention to the longer-term consequences of monetary actions. He pointed out that bank reserves did not increase in 1959 and fell in early 1960:

> Our policy, unless greatly ameliorated, will in a matter of time, whether weeks or months, produce effects that we do not at all want. … Monetary policy produces lagged effects. If the effects of an overdone restriction begin sooner or later to be overtly evident, and are unfortunate, as I think they will be, we should not be able to plead ignorance. … Let me also suggest, as a sort of aside, that the period we are in is one that

> illustrates the grave dangers of the free-reserve, net-borrowed reserve concept as a guide to policy" [Board of Governors 1960: 20; quoted in Meltzer 2010a: 204].

Soon after the economy was in recession. In the 1970s, Darryl Francis warned about money growth frequently. His warnings, like Bryan's, were ignored. In the 1970s, some FOMC members recognized that inflation was a monetary problem. They would not control money either because disinflation caused a temporary increase in unemployment or, more often, because monetary control required larger variation in market interest rates than they were willing to accept. The FOMC seems more concerned with protecting banks from interest rate fluctuations than in protecting the public from inflation.

Short-term market movements dominated Martin's concerns and governed his actions. He was correct that monetary economics could not predict the daily or weekly market movements that concerned him. But as Bryan and others pointed out at times, inflation would not be controlled using his procedures. Although Martin opposed inflation and made many speeches warning about the consequences of sustained inflation, the inflation rate reached 6 percent in 1970, the last year of his service.

One of the persistent errors was a consequence of the money market focus. Free reserves—member bank excess reserves minus borrowing—rose when borrowing declined and fell when borrowing increased. The decline in bank borrowing and in loan demand lowered other interest rates and money growth. A rise in bank borrowing had the opposite effect; the monetary base, money, and interest rates rose.

The Federal Reserve interpreted the fall in free reserves and the rise in interest rates as contractionary. Monetarists claimed that the increase in the monetary base and money showed that monetary policy was expansive. This difference in interpretation persisted. The movements of base velocity shown earlier support the monetarist interpretation of events.

One consequence was that money growth rose during economic expansions and fell during economic contractions. Federal Reserve policy was pro-cyclical. It prolonged recessions and increased inflations. Monetarists repeated their criticism frequently, but the Federal Reserve retained its interpretation.

Fed Governor Sherman Maisel pointed out in 1970 that when he became a member of the Board, he received hundreds of pages of material. None explained how the Federal Reserve made decisions. There was no written record and no agreement among the participants. More surprising to me is that there was never a discussion of the principles guiding monetary policy and no effort to agree on a broad framework. In fact, the Martin FOMC did not use forecasts until the mid-1960s. The "Riefler rule" forbade forecasting.

Later, the Board's staff developed an econometric model and several Reserve banks also had models. FOMC members received forecasts in advance of each meeting, but the minutes suggest that members did not rely on or agree to the staff forecast and, as mentioned earlier, Paul Volcker and Alan Greenspan did not find the staffs' forecasts useful.

Let me mention a few additional errors that appear frequently. The minutes rarely distinguish between real and nominal exchange rates and real and nominal interest rates. Members considered an 8 percent federal funds rate high even as inflation rose to 8 percent. The forecasting staff prepared forecasts without any consideration of monetary policy. James Pierce, a deputy research director pointed that out, but procedures did not change. The FOMC followed an "even keel" policy of holding nominal interest rates unchanged for weeks surrounding a Treasury financing. By the late 1960s, this policy severely restricted the time available for policy operations. Reserves supplied during even keel were not withdrawn, so they contributed to inflation.

There were other errors as well. The Federal Reserve was reluctant to urge the Treasury to auction securities, so it continued to support bond sales by increasing reserves, and the staff estimated the volume of reserves released or absorbed by changes in reserve requirement ratios. It failed to recognize that with interest rates unchanged, total reserves would not change.

After Congress passed Resolution 133 and later the Humphrey-Hawkins Act, the FOMC issued projections of rates of growth of several monetary aggregates. Actual growth often exceeded the projection. Instead of adjusting the next projection, the Committee based the next projection on the existing level. Several members, perhaps influenced by a staff study by Bill Poole, noted that this procedure gave an inflationary bias to the monetary aggregates, but the FOMC did not change.

## Brief Summary of 1951–86 Actions

In the book, the history of the years 1951–86 covers nearly 1,400 pages. All that I can do here is discuss a few highlights. I concentrate on inflation.

The main monetary policy events of the 1950s were the March 1951 Accord with the Treasury that permitted the Federal Reserve to raise the rates on long-term bonds above the 2.5 percent ceiling established in 1942 to help finance World War II. As part of the Accord, the Federal Reserve agreed to assist the Treasury in financing the debt. This was the reason for even-keel policy. It became a reason for inflationary policy.

The new chairman, William McChesney Martin, Jr., negotiated the agreement for the Treasury. Martin had experience in financial markets. He was skeptical about the value of economics for monetary policy, and he claimed that he did not understand the money supply. I conclude that the reason was the extremely short-run focus on the money market reflected in his use of free reserves or color, tone, and feel as main indicators. This usage hid the medium- and long-term consequences of his policy until inflation arrived.

Nevertheless, Martin maintained relatively low inflation in the 1950s. A main reason was that Presidents Truman and Eisenhower avoided large budget deficits except in recessions. President Truman raised tax rates to finance the Korean War, and the Eisenhower administration ran budget surpluses in several years. By 1960, when President Eisenhower left office, the actual and expected inflation rate was about zero.

The Eisenhower administration began a series of meetings with the Federal Reserve chairman that later became known as the Quadriad. During the Kennedy administration and even more forcefully under President Johnson, the administration attempted to restrict Federal Reserve independence by promoting "policy coordination." Many academic economists favored coordination. In practice, it meant that the Federal Reserve would finance budget deficits. When the time came to reduce the budget deficit, coordination did not work. Even worse, administration economists and the Board staff predicted "fiscal overkill" once the 1968 tax surcharge became law. They urged the FOMC to ease monetary policy. By year-end Chairman Martin knew that he had made a mistake by responding to the pressures for easier monetary policy. Inflation rose. The inflation

problem increased because people expected inflation to continue. Policy actions to end disinflation policy in 1967 and in 1970 when unemployment rose strengthened inflation expectations. Later experience reinforced the belief that inflation had lower priority than unemployment.

Deficit finance to pay for the Vietnam War and the Great Society and policy coordination were main reasons that the Great Inflation started. They were not the only reasons. The Kennedy Council of Economic Advisers believed it was socially desirable to increase inflation to lower unemployment. They gave no role to expected inflation. Instead, they claimed that they could use guideposts and guidelines to control price movements. This argument confused control of the level of a few relative prices and some money wages with control of the maintained rate of price change. Proponents never considered why successful control of some relative prices would control aggregate spending if money growth remained unchanged.

Mentioning the Council of Economic Advisers brings attention to the role taken by academic economists. The dominant view in the academic profession at the time was based on a simple Keynesian model such as the model in Ackley (1961). Economists could change outcomes by changing taxes and government spending. Monetary policy had the task of controlling interest rates to permit the economy to realize the full effect of fiscal policy. Expectations or crowding out did not appear. During the 1960s, Ackley was chairman of the president's council.

Dissent from these views was heard at the time, but did not influence policy until much later. Arthur Okun, the last chairman of President Johnson's council, dismissed Milton Friedman's (1968) presidential address as theoretically correct but practically irrelevant. He expected inflation to decline along the same Phillips curve on which it rose. He recognized later that that didn't happen.

The economists on President Nixon's Council of Economic Advisers accepted Friedman's analysis and believed that excessive money growth was the principal cause of inflation. However, they responded to political pressures to reduce the unemployment rate first and reduce inflation later. Most often, they urged the Federal Reserve to increase money growth.

President Kennedy expressed concern about the loss of gold and, at one point, threatened to take U.S. troops out of Europe to stop French and German gold purchases. French President deGaulle

believed it was an empty threat. France continued to buy gold from the U.S. stock. Germany stopped.

The Johnson administration used controls to prevent payments crises from spreading. By 1968, only governments and central banks could buy gold from the U.S. stock, and they were discouraged from buying. By the end of Martin's term in 1970, inflation reached 6 percent and the Bretton Woods system of fixed exchange rates was close to its end.

The administration and the Federal Reserve participated in numerous meetings in the 1960s to create Special Drawing Rights (SDRs). They gave no attention to exchange rate adjustment. Critics pointed out the mistake; the authorities ignored the criticisms.

In February 1970, Arthur Burns replaced Martin as chairman. Burns had publicly criticized the use of guideposts by the Kennedy and Johnson administrations, but shortly after becoming Federal Reserve chairman he became a principal advocate. Burns never clearly distinguished price level changes from change in the rate of price change. He blamed inflation on labor unions, monopolies, and the welfare state. Of course, he heard about money growth from his friend Milton Friedman, but he rejected Friedman's warnings. After he left office, he recognized that money growth was the principal cause of inflation but he explained that central bankers could not reduce money growth because of social pressures from labor unions, monopolies, etc.

Burns served two terms as chairman. He wanted reappointment, but the Carter administration wanted a more cooperative and congenial chairman. They chose William Miller. Miller negotiated the end of Regulation Q. He did not act effectively against inflation. After about 18 months, he left to become secretary of the Treasury.

Paul Volcker came next. President Carter appointed a known anti-inflationist. The president had not shown much interest in monetary control earlier, but he seems to have learned that guideposts, in any of his administration's adumbrations, would not control inflation. With the election approaching, and the public telling pollsters that the inflation was the country's main economic problem, President Carter accepted Paul Volcker's statement that he would be more active against inflation than his predecessors.

Volcker took office in August 1979. In September, the Board raised the discount rate on a 4 to 3 vote. Volcker thought the market would interpret the increase as evidence of his intentions. Instead,

many read the 4 to 3 vote as a sign of dissension and weakness. Volcker learned that incremental changes were not likely to work.

In early October, the FOMC unanimously agreed to control growth of bank reserves. The decision reduced the FOMC's responsibility for the rise in interest rates. In practice, they restricted changes in interest rates at times, but they did not prevent the funds rates from reaching 20 percent.

Reserve control was imperfect and erratic at times. Banks borrowed reserves at rates often far below the federal funds rate. Control imperfections may have prolonged the disinflationary period. Three other changes worked to make the anti-inflation policy succeed.

First, Volcker got the FOMC to make inflation control its priority. He reversed the lexicographic ordering by putting inflation control first. Several earlier efforts failed, despite strong statements by FOMC members, because the FOMC abandoned anti-inflation actions when the unemployment rate rose. Many believed the same would happen after 1979. Their beliefs received support when the Federal Reserve adopted credit controls and increased money growth in the spring of 1980.

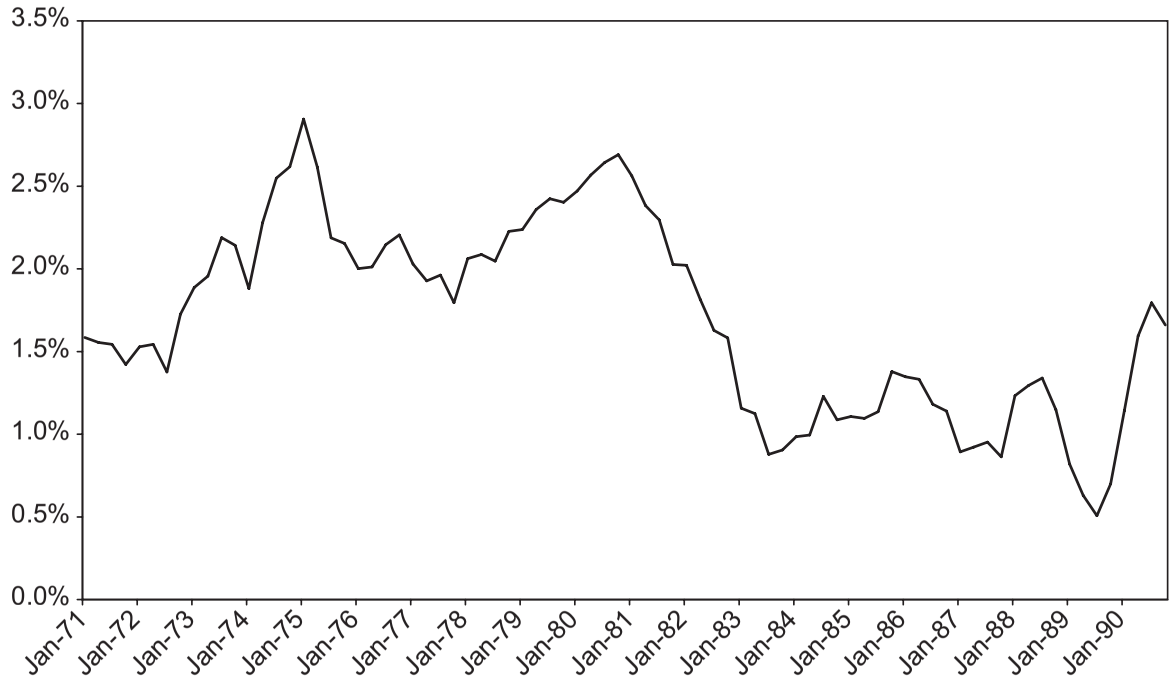
Second, the Volcker Fed began to change expectations when it raised interest rates in April 1981 with the unemployment rate about 8 percent. Contrary to several Keynesian forecasts made during the period, the expected rate of inflation fell quickly. Within less than 18 months, annual rates of inflation fell to 3 or 4 percent. The unemployment rate rose above 10.5 percent.

International and domestic financial failures brought "practical monetarism" to an end. Money growth increased and the economy recovered. Economic research has not given much attention to the fact that recovery occurred in 1983 and real growth rose despite real long-term interest rates as high as 7 percent. Real rates remained high for several years. Markets seem to have expected inflation to return in the mid-1980s. When that didn't happen, expected inflation and long-term rates declined.

My book ends with the end of expected inflation. I chose 1985–86 as that date because, at last, money wages, exchange rates, and long-term interest rates had settled at rates that did not anticipate a return of high inflation. Figure 4 shows the decline in money wage growth after 1981. By 1984, wage growth reached a noninflationary rate. This is the start of the period described as the "Great Moderation."

FIGURE 4

QUARTERLY CHANGE IN NOMINAL COMPENSATION PER HOUR: FOUR-QUARTER MOVING AVERAGE, 1971–90




SOURCE: Meltzer (2010b: 1167).

Money growth and inflation were moderate. Long expansions ended in mild recessions. Per capita real disposable income increased 50 percent from 1986 to 2005. Complaints shifted from aggregate to distributional results. Unemployment and inflation remained broadly consistent with a Taylor Rule.

## Misperceptions and Mistakes

As I noted near the start, most of the errors that I find in Federal Reserve policy are found in the minutes. Members of FOMC urged changes to avoid major problems. Most comments of this kind received no response, and changes did not follow.

The models or frameworks used to analyze events made a major contribution to policy mistakes. The simple Keynesian theory in the 1960s replaced the real bills doctrine from the 1920s and 1930s as a source of error. Neglect of expectations and efforts to permanently reduce the unemployment rate by increasing inflation reinforced the mistakes.

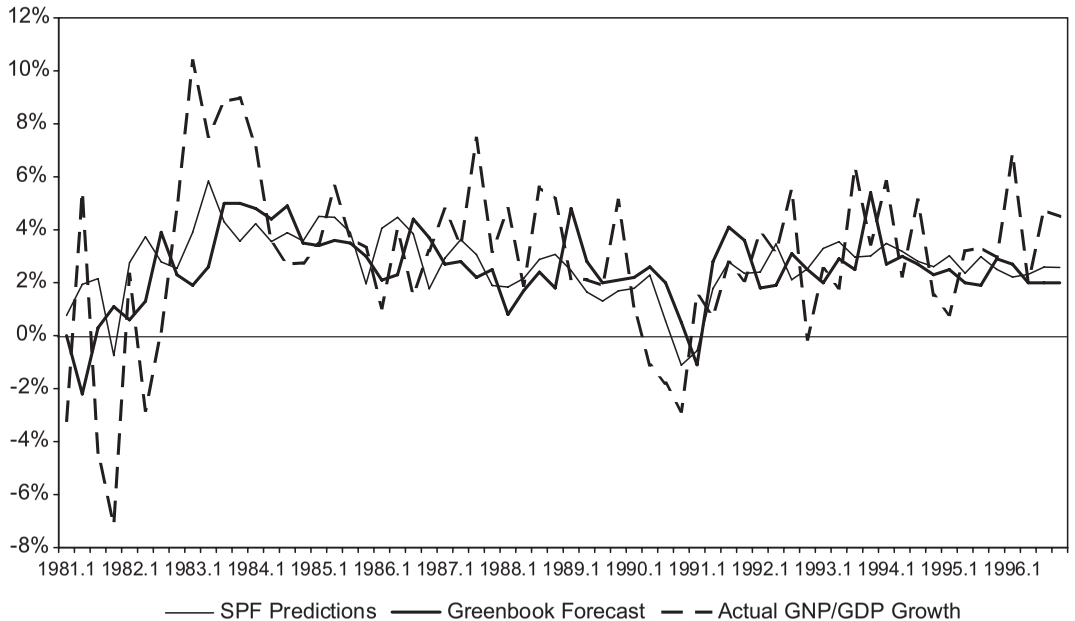
The chairmen and members of FOMC did not slavishly follow an economic model. Many regarded themselves as practical people, making judgments based on what they saw and heard. This was especially true of Chairman Martin in the 1950s. He did not find economics useful, especially the economics of money.

Martin was not alone. With the exception of the Volcker disinflation, money growth is dismissed as irrelevant. I believe the reason mainly reflects another failing—excessive attention to near-term actual or perhaps expected events and the neglect of longer-term implications of policy actions. The minutes that I read through 1986 contain numerous pages discussing whether the FOMC should change the funds rate by one-eighth or one-quarter of 1 percent, but there was nothing or almost nothing about longer-term consequences. Volcker freed the FOMC from this type of myopia for only three years. It returned.

Figures 5 and 6 compare market consensus projections of growth and inflation to Federal Reserve forecasts and actual growth rates. The periods shown differ, but for both charts the large errors are forecast errors not data revision errors. One disconcerting finding is the persistent large difference between actual inflation and inflation forecasts from 1971 to 1974. The same problem reappears from 1976 to 1979. The forecasts underestimated inflation almost all the time.

FIGURE 5

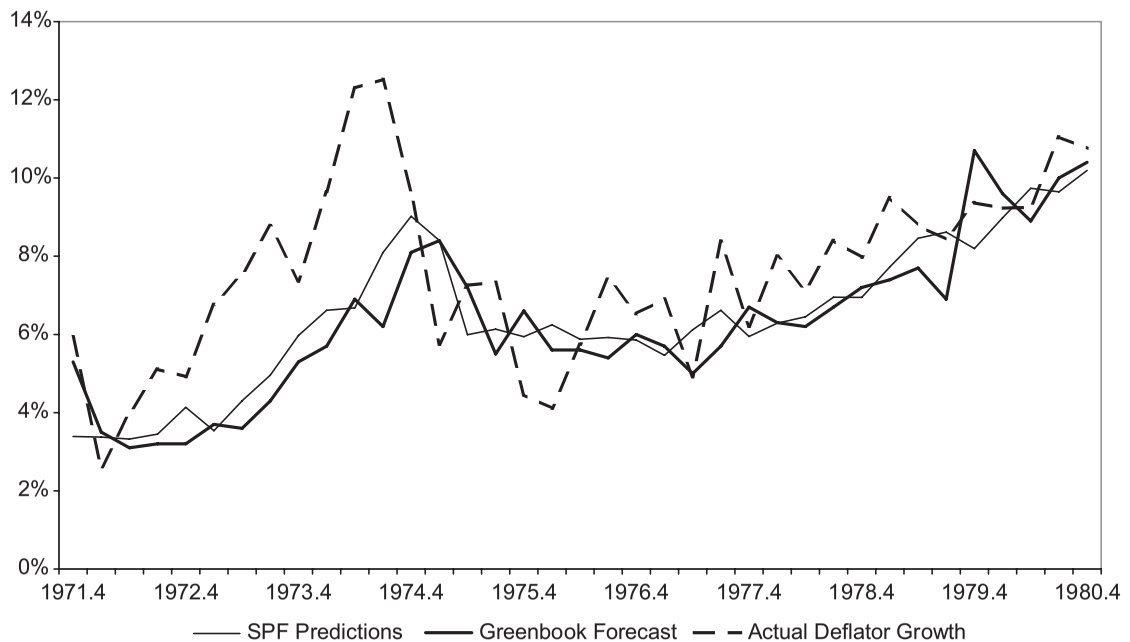
SPF versus Greenbook Forecasts of Real GNP/GDP Annualized Quarterly Growth Compared with Actual GNP/GDP Growth: 1981.1–1996.4




Source: Meltzer (2010a: 1140).

FIGURE 6

SPF versus Greenbook Forecasts of GNP/GDP Implicit Price Deflator Annualized Quarterly Growth Compared with Actual Deflator Growth: 1971.4–1980.4




Source: Meltzer (2010b: 863).

Orphanides (1981) showed that inaccurate Phillips curve forecasts were a major reason for the error.

Members of FOMC knew about the forecast errors. Paul Volcker and Alan Greenspan did not rely on Phillips curve forecasts. Both chairmen praised the staff but disregarded the forecasts, regarding them as inaccurate. Both recognized that, contrary to the Phillips curve, on average inflation and unemployment rates were positively related in the 1970s and 1980s.

Figure 5 suggests that forecast errors for real GDP are often large, often much larger than differences between Federal Reserve and market consensus forecasts. Figure 7 shows forecast errors for real GDP growth from 1971 to 1999. Large errors and persistent errors show how difficult it is to forecast quarterly changes.

The puzzle is that the Federal Reserve gives so much attention to the near-term and so little to longer-term consequences. They know, as we all should know, that economics is not the science that gives accurate near-term forecasts of inflation and output growth. There is no such science. Further, even if near-term forecasts improved greatly there is good reason to believe that policy changes would not have much near-term effect.

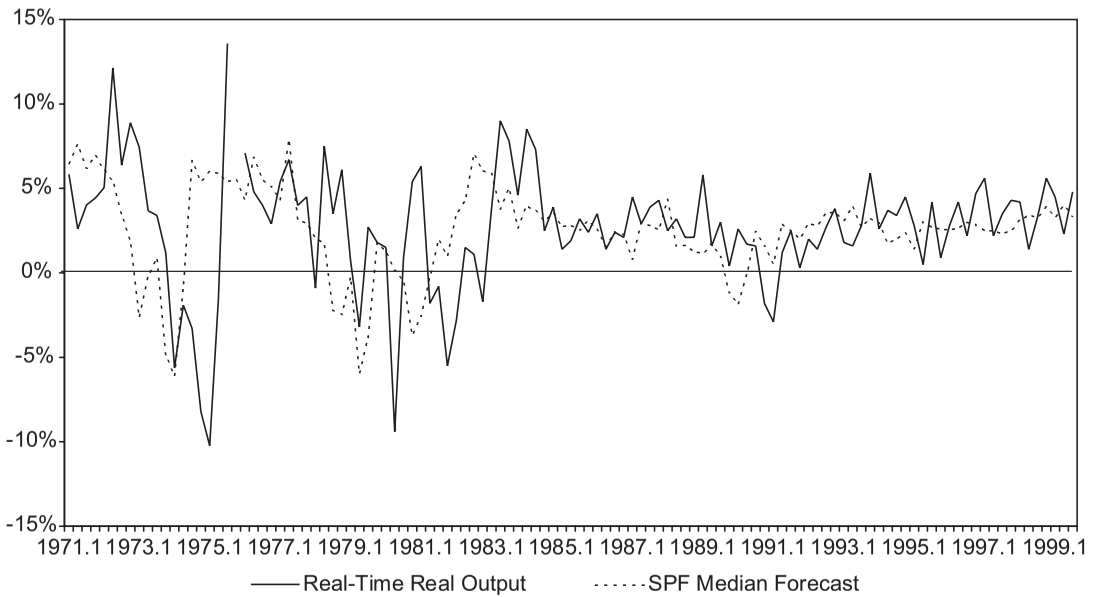
A related part of the puzzle is that policy can have a predictable effect on medium-term inflation. Several countries have adopted inflation targets that aim at inflation 2 or 3 years ahead. The U.S. Congress has not accepted an inflation target, and the Federal Reserve has not adopted one.

## The Future

Currently, the Federal Reserve faces two major problems. The government has announced that it plans $9 trillion dollars of budget deficits over the next decade. They do not tell us how they propose to finance the deficits or how they might reduce them. The Federal Reserve increased bank reserves by more than $1 trillion, from $800 billion to $2.2 trillion after the Lehman failure in 2008. At the time I write measured excess reserves are $1 trillion. It is disingenuous and wrong to tell the public that most of the problem will be handled by paying interest on bank reserves or selling non-marketable securities. How high do they believe the interest rate must rise to get banks to hold hundreds of billions of reserves after loan demand increases? And does the staff model recognize that banks see the lending rate,

FIGURE 7

Median Forecast of Real Output from Survey of Professional Forecasters versus "Real-Time" Real Output: 1971.1–1999.3




Note: Real output measured as GNP through 1991, GDP thereafter.

Source: Meltzer (2010b: 1236).

not the funds rate, as the relevant opportunity cost? To plan for the future, the public should be told how these enormous deficits will be financed and how excess reserves will be reduced. History does not record any example of countries that faced high money growth, large and growing budget deficits, and a depreciating currency that escaped inflation. The only examples to the contrary are countries that adopted strong disinflationary fiscal and monetary policies. The United States has not begun to make the changes that will be needed. This is another example of lexicographic ordering and a short-term focus.

My history shows that the meaning of Federal Reserve independence changed several times after 1951. Paul Volcker restored independence after the Great Inflation. Much of that independence was surrendered in the recent crisis.

History suggests that independence and public support of disinflation will be critical in reducing reserves to prevent inflation. During the 1970s the FOMC determined to reduce inflation several times. It did not persist. As unemployment and interest rates rose, voices in Congress, the administration, business, labor, and the public called for lower interest rates, higher growth, and more employment. Policy changed.

The Volcker disinflation had public support. Opinion polls showed inflation as the public's most serious problem. The public elected Ronald Reagan on a program to reduce inflation and restore growth. And leading members of Congress, including chairmen of the banking committees, supported a disinflation policy. Those conditions are not present at current and prospective rates of inflation.

What should the Federal Reserve do? They should announce the details of their plan and explain the plan and its likely consequences to the Congress and the public.

Congress should accept and endorse an independent Federal Reserve, but in return the Fed should accept restrictions on its actions. Central bank independence began under the gold standard. Central banks received protection from financing the government but agreed to abide by gold standard rules. After the gold standard ended, that restriction no longer limited discretion. One consequence is that the Federal Reserve can increase unemployment and inflation. The public cannot sanction the Fed. It blames its political representatives.

Back in 1980, I proposed that the Federal Reserve should announce its planned growth and inflation targets. If it misses the

target by more than a minor error, it should offer an explanation and a resignation. The president can accept the explanation or the resignation. That closes some of the gap between authority and responsibility.

After the New Zealand central bank heard my proposal, they improved on it by choosing the inflation target in negotiation with the government. Many other governments followed. The United States has not.

Another reform requires recognition of the failure to announce a rule for lender-of-last-resort. In 96 years, the Federal Reserve has not adopted a rule of this type. This increases uncertainty as comparison of the response to Lehman and AIG shows. Who knew what would happen next? Also, absence of a rule encourages failing firms to pressure Congress to pressure the Federal Reserve. And, bailouts induce risk taking and moral hazard.

The Federal Reserve and Congress should agree on a lender-of-last-resort rule. Bagehot's rule from 19th century Britain is an excellent starting point. When the Bank of England followed the rule, there were failures, but failures did not end in crisis. Banks borrowed against good collateral.

The lender-of-last-resort rule should be part of a reform that includes ending the "too big to fail" policy of the past 30 years. That policy promotes gigantism, moral hazard, and encourages excessive risk. The policy protects large banks at public expense. And it distorts markets by supporting large banks while letting smaller banks fail. A correct policy would protect the public not the large banks.

To implement the policy, Congress should require that, beyond some moderate size, banks must increase capital more than in proportion to their increase in asset size. To prevent failures from spreading to counterparties, banks should have a right to borrow from the Fed on acceptable collateral. Gains from economies of scale and scope do not compensate the public for losses from bailouts. And banks that receive aid should be required to repay, as Chile requires.

Many critics of economics claim that economists failed to forecast the housing and financial crisis. This criticism assumes that economics is the science that provides accurate forecasts. For 50 years, some of us showed that near-term events can be approximated as a random walk.

Forecasts can be improved, however. Muth (1960) showed how to analyze permanent or persistent errors. Few if any financial institu-

tions use Muth's procedure. The Board of Governors model does not admit persistent shocks, or permanent changes in the environment. The Russian default, housing price declines, failure of Long-Term Capital, and many other persistent changes produced major market disturbances. We cannot expect to predict permanent changes, but we can improve the ability to recognize them when they occur.

Finally, I repeat my earlier proposal to increase both price and exchange rate stability. We know that no country acting alone can provide both, but both are desirable. My proposal calls for agreement by the major currency providers—the United States, the European Central Bank, Japan, and China (if it develops a less restricted monetary system). The countries would agree to maintain inflation between 0 and 2 percent. Any country that fixed its currency to the low inflation currencies would import low inflation and maintain a fixed exchange rate. The United States, Japan, and the ECB would benefit from fixed exchange rates and low inflation in countries that fix. Countries that chose to float their currency could do so, but they would lose the public benefit. Real exchange rates would remain flexible.

## Conclusion

In its 96 year history, the Federal Reserve has adapted to extraordinary changes in political and monetary arrangements. Its record, however, is not without failures and errors.

Reforms should be made, to reduce errors. Discretion should be limited by a rule or quasi-rule, preferably one that is compatible with low inflation policies abroad. Congress and the Federal Reserve should agree on a rule for the lender-of-last-resort and follow it.

The most important single change in policymaking would change the FOMC's focus from very-near-term events to increased attention to longer-term consequences of its actions. In its long history, there are few periods of sustained growth and low inflation. The years of the Great Moderation are an exception. At that time, the Federal Reserve acted as if it followed a Taylor Rule. More attention to longer-term consequences embedded in a quasi-rule like the Taylor Rule is a start. Once the FOMC abandons excessive attention to near-term events, it will find that money growth is an imperfect but useful guide on which to rely.

Through most of its history, the Federal Reserve followed lexicographic ordering with unemployment its principal concern. When it

shifted concern to inflation, unemployment rose. Concern shifted back to unemployment. In 1980–82, disinflation was its main concern. Currently, it is back to concentrating on reducing the unemployment rate. Instead of following its dual mandate, it takes one objective at a time. The result in the 1970s was that both unemployment and inflation rose on average. And in the 1980s both declined.

The Fed's massive intervention to rescue the large banks and respond to rising unemployment is not matched by an effective strategy to prevent inflation. Although Chairman Bernanke told us repeatedly that excess reserves would decline when banks and others repaid their short-term debt, it didn't happen. Instead the Fed increased mortgage holdings. These actions introduce large amounts of long-term, illiquid assets onto the Fed's balance sheet. Nothing like this has ever occurred. It abrogates independence by allocating credit to help the housing industry and by mixing credit policy and monetary policy. Also, it makes it more difficult to reduce the massive volume of excess reserves. Who will buy the massive holding of illiquid mortgages?

Classical economists understood that when real cash balances rise above the public's desired holdings, the public buys assets and/or output. When real balances fall below desired levels, the public accumulates balances and prices fall until desired real balances are reached. The annual demand for base money and money is sufficiently stable to make this classical or neoclassical proposition useful, more useful I expect that many of the propositions that are in vogue.

Most of the economic models used in the academic literature and at the Federal Reserve do not include asset prices and credit markets. One exception that reflects the emphasis on asset markets as well as output and prices is in the series of papers that I did with Karl Brunner.[4] This work analyzes the interaction of money, debt, and capital markets as the process that characterizes the credit and money markets. How can a central bank analyze or regulate banks and financial institutions correctly using models limited to output markets in which money has no role?

Finally, the recurring issue of the role of Federal Reserve bank presidents is again active. In the past Congress has not changed their role. That is the right decision, I believe. It retains the broad influ-

[4]Brunner and Meltzer (1993) summarize this work, much of which is available also in major journals.

ence brought by the presidents, representing regional as well as national interests. In the past, the regional banks have proposed important changes. St. Louis pressed for the increased attention to money, real interest rates, and inflation that became Fed policy from 1979 to 1982. Minneapolis has led in the effort to reform the response to bank failures, and all regional banks bring information from business, labor, and consumers. Moreover, the regional banks are less influenced by political pressures. This valuable role is the heart of President Wilson's compromise that created the Federal Reserve. The compromise should be retained.

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