

# **POLITICAL CONSTRAINTS ON MONETARY POLICY DURING THE U.S. GREAT INFLATION**

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*Abstract.* This paper argues that the Federal Reserve's failure to control inflation during the 1970s was due to constraints imposed by the political environment. Members of the Fed understood that a serious attempt to tackle inflation would be unpopular with the public and would generate opposition from Congress and the Executive branch. The result was a commitment to the policy of gradualism, under which the Fed would attempt to reduce inflation with mild policies that would not trigger an outright recession, and premature abandonment of anti-inflation policies at the first sign of recession. Alternative explanations, in particular misperceptions of the natural rate of unemployment and misunderstandings of the nature of inflation, do not provide a complete explanation for Fed policy at key turning points during the Great Inflation. Evidence for this explanation of Fed behavior is found in Minutes and Transcripts of FOMC meetings and speeches of Fed chairmen. Empirical analysis verifies that references to the political environment at FOMC meetings are correlated with the stance of monetary policy during this period.

JEL classification: E5, E6, N1

## 1. INTRODUCTION

What accounts for the Federal Reserve's failure to control inflation in the United States in the 1970s? Two theories have gained prominence in recent years. One, the "mismeasurement" hypothesis, is associated with the work of Orphanides (2002, 2003, 2004) and Orphanides and Williams (2004). According to this view, during the period of the Great Inflation staff economists at the Fed and elsewhere consistently overestimated the productive capacity of the economy. These faulty estimates, combined with an implicit policy rule that placed strong emphasis on maintaining full employment relative to inflation control, resulted in a monetary policy that was consistently overexpansionary. Control began to be exerted over inflation in the early 1980s when policymakers began operating according to a more realistic estimate of potential output.

Romer and Romer (2002) and Nelson (2006) offer another explanation which I call the "misunderstandings" hypothesis. These authors argue that prior to the early 1980s policymakers subscribed to a variety of beliefs about the economy that led them to underestimate the inflationary impact of monetary policy. These beliefs included the idea that there existed a permanent tradeoff between inflation and unemployment; that the natural rate of unemployment was very low; that monetary policy did not have a substantial effect on inflation; and that the output costs of disinflation were very high. According to this view, the turning point in the battle against inflation came when policymakers in the early 1980s adopted a modern view of the role of monetary policy in controlling inflation.

This paper advances another view. I argue that the Fed was constrained from taking action against inflation by a political environment that was unsupportive of high interest rates, slow growth, and high unemployment. Other authors including Kettl (1986), Havrilesky (1993), Wells (1994), DeLong (1997), Mayer (1998), Matusow (1998), Meltzer (2005), and Hetzel

(2008), have argued that political constraints bear some responsibility for the Fed's inability to sustain an anti-inflation policy. This paper's contribution is to produce narrative and econometric support for the role of political considerations from an exhaustive study of Minutes and Transcripts of Federal Open Market Committee (FOMC) meetings, focusing especially on monetary policy turning points during the Great Inflation.

A review of FOMC documents identifies six key turning points during the Great Inflation: In mid- to late 1972, the Fed held off on tightening monetary policy in the face of intensifying inflationary pressures. While the inflation rate was suppressed because of price controls, excessive GDP growth and falling unemployment created inflationary pressures that burst out in 1973. The Fed made the same error in 1977-1978. Though the annual inflation rate rose continuously during this period, the Fed maintained an expansionary policy throughout 1977, tightening only modestly in spring and fall 1978. These efforts were not enough to prevent a burst of inflation in 1979. In early 1970, late 1973, and late 1974, the Fed eased policy prematurely during attempts at disinflation. In each case the decision to ease came at the first sign of economic weakness and before any progress had been made in reducing inflation. Finally, in 1981 the Fed maintained its tight policy despite high unemployment, easing in 1982 only after inflation had fallen considerably. The decision to maintain tight policy during the 1981-82 recession signalled the end of the Great Inflation.

Misperceptions of the economy's productive capacity and misunderstandings of the relationship between monetary policy and inflation may have influenced the Fed's choices at these turning points by causing the Fed to underestimate the impact its actions would have on inflation. The FOMC documents, however, make clear that at each turning point FOMC members were aware that inflationary pressures were strong and that the decision to ease would result in an increase in inflation. These policy choices were not driven by misestimation or

misunderstandings. They were conscious decisions to gear monetary policy towards promoting economic expansion at the cost of higher inflation motivated by the Fed's understanding that the public and government would not tolerate a tight monetary policy. Misperceptions and misunderstandings may have facilitated the Fed's actions by causing it to underestimate the inflationary costs of expansionary policy, but the root cause of the Fed's policy decisions was political calculation.

In arguing that the political environment affected monetary policy decisions during the period of the Great Inflation, I do not mean to suggest that the Fed was simply carrying out orders from the President or Congress. In general the political environment affected policy in a more subtle way by defining the range of policy alternatives the Fed considered to be acceptable. The Fed rarely found itself in a position of having to respond to direct commands from Congress or the President because it was careful not to test the limits of its authority too forcefully. Arthur Burns, Chair of the Fed from 1970 to 1978, articulated this view in a widely-quoted speech given after he left the Fed (Burns, 1979, especially pp. 15-16). Looking back at the period of the Great Inflation, he explained that the Fed was unwilling to frustrate "the will of Congress to which it was responsible" by declining to accommodate inflationary fiscal and social policies. When the Fed did contract monetary policy, the criticism its actions provoked forced the Fed to back off before success was achieved. Faced with these political constraints, the Fed's policy consisted of "testing and probing the limits of its freedom to undernourish the inflation" while warding off hostile legislation. The result was periods of overly expansionary monetary policy punctuated by abandoned efforts at disinflation and a ratcheting up of inflation throughout the decade.

Minutes and transcripts from FOMC meetings support Burns' account. Members of the FOMC frequently expressed concerns about the political consequences of contractionary policy. These concerns took two forms. At times Committee members warned that the pursuit of

contractionary policy would elicit a direct negative reaction from Congress or the President such as passage of legislation that would restrict the Fed's independence. More often, Committee members argued that if contractionary monetary policy resulted in recession, Congress and the President would respond with an expansionary fiscal policy. The Fed would then be forced to back away from monetary contraction lest its policies be seen to be inconsistent with the policy objectives of the elected branches of government. In either case, the evidence suggests that the Fed would have adopted policies more likely to contain inflation had such policies had the support of political actors outside the Fed.

The political constraints hypothesis explains the key features of monetary policy during the period of the Great Inflation. First, it explains why the Fed delayed taking action against inflation during periods of economic expansion and why it prematurely abandoned disinflation efforts in the early years of the Great Inflation. Second, it explains the adoption of "stop-go" monetary policy. When the unemployment rate was relatively low and inflation was rising, the Fed was able to take advantage of political support for restraining inflation by raising interest rates. But as soon as the unemployment rate began to rise, that political support evaporated and the Fed came under pressure to lower rates. Third, the political constraints hypothesis explains the adoption of "gradualism" as a strategy for reducing inflation. The gradualist approach to reducing inflation involved contracting monetary policy enough to reduce GDP growth below its potential level but not enough to cause GDP to fall or unemployment to rise to intolerable levels. In effect, gradualism amounted to the policy of pursuing an anti-inflation policy up to but not exceeding the limits of the political system's willingness to tolerate slow growth and rising unemployment. Fourth, the constraints placed on the Fed also explain the Fed's enthusiasm for macroeconomic policy coordination with other agencies of government. The Fed recognized that the modest degree of tightening to which it was willing to commit would not by itself have a

marked impact on inflation.<sup>1</sup> For this reason the Fed repeatedly pushed for the other agencies of government to cooperate in attempts to control inflation through fiscal, regulatory, and energy policy. At times (especially 1971-72 and 1977-78) coordination meant that the Fed effectively accepted the policy priorities of the President rather than trying to fight inflation on its own. At others (notably 1975-76 and briefly in 1978), the adoption of anti-inflation programs by the executive branch allowed the Fed to pursue a more restrictive monetary policy. Finally, the political constraints hypothesis explains why the Fed was able to bring inflation under control after 1979. In 1979 inflation reached a crisis level and a public mandate formed to take painful measures to reduce it. During 1979 and 1980, the Carter Administration's declaration that inflation was "public enemy number one," combined with the public's perception that the Administration's economic policies were ineffectual, created an opening for the Federal Reserve to take the lead in fighting inflation. Paul Volcker skillfully used this opening to create a new role for the Federal Reserve as the independent guardian of price stability.

The next section of this paper constructs a history of monetary policy from 1969 to 1981 with a focus on the turning points between attempts at disinflation and growth promotion. This section describes how the political environment in which the Fed operated constrained its monetary policy choices. It also discusses the events that led to the policy changes under Paul Volcker's chairmanship. Section 3 briefly discusses the role of misestimation and misunderstanding in facilitating expansionary policy during the Great Inflation. Section 4

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<sup>1</sup> Nelson and Romer and Romer interpret statements to this effect as evidence that policymakers at the Fed and elsewhere did not believe in the efficacy of monetary policy. But almost invariably when Arthur Burns or other Fed officials made such statements in FOMC meetings or public speeches, they were referring to the effectiveness of monetary policy actions *within the range of political acceptability*. As evidenced by his 1979 speech, Burns believed that a sufficiently strong monetary contraction was capable of having a large effect on inflation. A working paper version of this paper presents more evidence from public speeches that the Fed chairmen believed that the ability of contractionary monetary policy to reduce inflation was limited primarily by political rather than structural constraints.

presents a number of statistical tests of the political constraints hypothesis using data generated from the FOMC Minutes and Transcripts. Section 5 concludes.

## **2. MONETARY POLICY DURING THE GREAT INFLATION**

This study is based on an analysis of Federal Reserve documents from 1969 to 1981, including Records of Policy Actions (RPAs) from the Federal Reserve Bulletin; Memoranda of Discussion from FOMC meetings (*Minutes*) for 1969 to 1975 (provided by the Board of Governors of the Federal Reserve System); and transcripts of FOMC meetings (*Transcripts*) for 1976 to 1981.<sup>2</sup> I use RPAs (and especially information on the interest rate and monetary targets contained therein) to identify dates at which the Fed switched from a relatively tight to relatively loose monetary policy and vice versa.<sup>3</sup> The documents are used to construct a narrative analysis of monetary policy decisions made during the Great Inflation period with a particular focus on the periods around turning points.<sup>4</sup> Figures 1 to 5 present data to supplement the narrative analysis. The figures show: the actual and target federal funds rates; actual revised GDP deflator inflation, unemployment, and GDP growth rates; and current and two-quarter ahead Greenbook forecasts of the corresponding variables. The figures also mark the tightening and easing dates. Finally, the *Minutes* and *Transcripts* are the sources of statements by members of the FOMC referring to political constraints that form the basis of the empirical work in Section 4.

### **2.1 The first disinflation attempt, 1969-1970**

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<sup>2</sup> Transcripts for the years 1978 to 1981 were obtained from the Board of Governors website. These are verbatim transcripts edited by Board staff. Transcripts for 1976 to 1977 were obtained from the Gerald Ford Presidential Library. These are the raw, unedited transcripts; where necessary I made minor changes marked in brackets to clarify what I took to be the speaker's meaning. Forecast data shown in the figures that appear in the paper are from Greenbooks prepared for each meeting of the FOMC. These were provided by the Board of Governors. The federal funds rate target series was compiled from attachments to the Memoranda of Discussions and the Records of Policy Actions.

<sup>3</sup> Policy switched from loose to tight on 12/17/68, 1/16/73, 3/18-19/73, and 10/6/79; policy switched from tight to loose on 2/10/70, 10/16/73-12/17-18/73, 10/14-15/74, and 10/5/82. These dates correspond closely, but not exactly, to changes in the Boschen Mills (1995) index. Further details are in an appendix available from the author.

<sup>4</sup> The narrative is kept fairly brief because of space constraints. A more detailed history is contained in a working paper version of this paper available on the author's website.

The origins of the Great Inflation in the mid-1960s have been discussed at length elsewhere (Kettl, 1986; DeLong, 1997; Meltzer, 2005 and others). The Fed under Chairman McChesney Martin had allowed the inflation rate to creep up during the late 1960s. The first attempt to deal with inflation in 1966 was quickly abandoned. But with inflationary pressures building, the Fed finally committed to a sustained monetary contraction in December 1968.

We know in retrospect that ending the Great Inflation would require the Fed to maintain a tight monetary policy through a period of high unemployment. The Minutes of FOMC meetings in 1969 suggest that the Fed then had a greater willingness to pay the necessary price for ending inflation than it would have at any time during the 1970s. While members of the FOMC repeatedly expressed their hope that the economy would avoid recession, Chairman Martin argued that the Fed needed to sustain its policy, even at the risk of higher unemployment, until inflation expectations were broken. In July, for example, Martin responded to concerns about the weakening economy by arguing that “inflationary psychology remained the main economic problem... It would be a mistake... to take any action that might reinforce inflationary expectations just at the time when some weakening in those expectations might be developing” (*Minutes 7/15/69*, p. 80). In August he advocated against easing on the grounds that “it was important for the System not to get into a position of validating the expectations of numerous skeptics who believed the System would ease its policy as soon as it heard the words ‘recession’ or ‘overkill’” (*Minutes*, 8/12/69, p. 77-78). Martin’s opposition to easing continued through the end of 1969, even after September when the staff economists began to warn specifically of an imminent recession. The federal funds rate rose from six percent at the end of 1968 to nine percent in June, and stayed around that level until January 1970.

It was recognized that the Fed’s tightening policy put it at odds with the desires of the new Nixon Administration. In the meeting of April 1969, Governor Maisel noted that

Administration officials “had made clear that they wanted to attempt a gradualist approach to the ultimate goal of price stability” and that “they had repeatedly stated their hope that the Federal Reserve would cooperate in such an approach.” (*Minutes*, 4/1/69, p. 66-69) For this reason, Maisel urged the FOMC to ease policy to avoid recession. In the August meeting Mr. Morris argued that “the policy of gradualism had been abandoned so far as monetary policy was concerned.” He accused the Committee of following a policy “designed to produce a faster response in the price level in 1969 at the risk of producing a modest recession in 1970.” (*Minutes*, 8/12/69, p. 34-36) Despite these misgivings the tight policy stance remained in place through 1969. At the January 1970 meeting, Martin’s last as Chairman, the Committee adopted language in the directive signaling a slight relaxation of the degree of restraint. Despite signs that the economy was weakening, however, the Committee rejected an outright expansionary move. The federal funds rate, which was close to nine percent in the week of the meeting, stayed above nine percent for the rest of the month. Thus Martin’s term ended with the Fed still committed to a contractionary course, despite the fact that by that time the economy was in recession.

Arthur Burns replaced Martin as Chair at the beginning of 1970. The Fed began to ease in earnest following the February 1970 meeting: within a month the federal funds rate had fallen from nine percent to under eight percent. Beginning in June the easing accelerated, with the federal funds rate falling from 7.6 percent to 4.1 percent by January 1971.

Political considerations arising from the unwillingness of the Nixon Administration and Congress to sacrifice economic growth for control of inflation played a large role in the decision to ease. As noted by many authors (e.g. Wells 1994, p. 42), the Nixon Administration expected Chairman Burns to push the Fed to adopt a more expansionary monetary policy in support of the Administration’s gradualist approach to reducing inflation. Burns is widely credited with resisting pressures for ease, and the Administration did not get as expansionary a policy as it

desired. But it was clear to members of the FOMC that there was no political support for a continuation of the contractionary policy of 1969. Consequently, after February 1970 the Fed's objective was not to reduce the inflation rate but to do as much as possible to stimulate economic growth without significantly worsening the inflation problem.

Burns' main argument for easing, which was shared by several others on the Committee, was that a recession would cause the Administration and Congress to adopt more expansionary fiscal policies to stimulate growth. Members of the FOMC do not seem to have considered the possibility that in such a case the Fed would be able to offset the effects of the fiscal expansion with higher interest rates (as the Volcker Fed did in the early 1980s). Instead, it was assumed that the Fed would have to fall in line behind the Administration's policy. Thus in the March meeting Chairman Burns argued that

if the weakening in the economy became pronounced and monetary policy remained highly restrictive, within a few months there was likely to be an increase in Federal spending so large as to carry a real danger of a resurgence of inflationary pressures. He made that statement with confidence on the basis of intimate knowledge of the thinking of members of the Administration and some knowledge of Congressional thinking. (*Minutes 3/10/70*, p. 61)

At one point the feared consequences of an overly restrictive policy took a harder edge. In the April meeting Burns urged the Committee to focus its attention on the unemployment problem, arguing that if it failed to do so Congress was poised to pass legislation that would reduce the Fed's independence by requiring the Fed to make low interest housing loans to qualified borrowers. In this case, Burns argued, "it would be only a matter of time before the Federal Reserve would find itself in the position of some Latin American central banks." (*Minutes, 4/7/70*, p. 52-53)

Throughout 1970 members of the Committee were attuned to the level of unemployment that would be considered politically unacceptable. Mr. Galusha noted that the Fed's projected

level of unemployment for the end of 1970, 5.1 percent, was “by current political standards, rather a high average rate” (*Minutes*, 3/10/70, p. 66). Mr. Heflin observed that unemployment in the range of 5.5 to 6 percent “would very likely create social and political pressures that might well make it impossible for the Committee to stick to any path of moderate expansion” (*Minutes*, 6/23/70, p. 23). Similar arguments were made by Mr. Galusha (*Minutes*, 7/21/70, p. 46-47) and Mr. Coldwell (*Minutes*, 12/15/70, p. 37-38).

As the economy continued to weaken through 1970, the Nixon Administration and members of Congress pushed for a more expansionary policy. The President’s Council of Economic Advisors argued that the Fed should aim for a nine percent increase in the money supply (Wells, 1994, p. 61). While Burns resisted an expansion of this magnitude, by the end of the year he was pushing the FOMC to increase the money supply growth rate in order to make up for the sluggish growth earlier in the year. At the meeting of January 12, 1971, Burns made a plea for the Committee to take further aggressive actions to fight recession. The issue for Burns was “credibility” with the Administration; by this he seems to have meant that if the Fed was not perceived to be pursuing a strong growth policy, the Administration would resort to an expansionary fiscal policy. “The credibility of the Federal Reserve,” he argued, “would be greatly strengthened if it became apparent that the Committee was seeking to make up the recent shortfalls [in money growth].” (*Minutes*, 1/12/71, p. 36-37)

By the spring of 1971 monetary policy was on a more firmly expansionary path with the federal funds rate below four percent by March. At the April 6 meeting, Burns seemed to indicate that the measures the Fed had taken since January had satisfied the Administration.

Chairman Burns said it was now recognized within the Administration to a much greater degree than earlier that the monetary authorities had done their job well, and that if any further stimulation was needed it would have to be provided by fiscal policy. (*Minutes*, 4/6/71, p. 22)

Despite the fact that the Fed's inflation forecasts were higher in early 1971 than they had been when the disinflation effort began in 1969, the Fed was now firmly committed to an expansionary policy.

## **2.2 The expansion of 1971-73**

From 1970 to 1971 the economy struggled through a period of high unemployment and slow growth in real GNP. In response, monetary policy turned strongly expansionary. By 1972, however, economic growth was running at annual rates exceeding five percent and unemployment was falling rapidly from its peak of six percent in 1971:Q3. Inflation remained subdued until late 1972, largely because of price controls adopted in August 1971. At the end of 1972 and especially in 1973, the inflationary pressures that had built up over the previous year burst out. The Fed had begun to tighten in January 1973, but it was too late to avoid a dramatic rise in inflation. In retrospect, the failure to raise interest rates more aggressively in 1972 proved to have been a critical mistake.

Strategic-political considerations were the most important reason for the Fed's failure to act in 1972. In August 1971 the Nixon Administration had announced its New Economic Policy aimed at stimulating growth, reducing the balance of payments deficit, and reducing inflation. As ultimately passed by Congress, the plan amounted to a fiscal expansion to stimulate growth coupled with an incomes policy to control inflation. During the fall of 1971, the FOMC debated whether it should gear monetary policy towards supporting the Administration's growth objectives or its inflation objectives. This debate occurred in a political environment that was hostile to policies that raised the risk of recession. The Administration initiated a heavy-handed campaign to pressure the Fed to continue its expansionary policies in order to avoid recession

before the 1972 election.<sup>5</sup> For their part, members of Congress repeatedly sought a commitment from the Fed to maintain an expansionary policy (see e.g. Chairman Burns' testimony to the Joint Economic Committee, excerpted in *Minutes* 2/15/72, p. 47).

By early 1972 the FOMC had set monetary policy on a firmly expansionary track. A desire to be seen as supporting the Administration's economic agenda – and concern about the consequences of not being so seen – clearly played a role in the decision to adopt this course of action. In the meeting of December 1971, for example, Chairman Burns called the Committee's attention to the slow growth in monetary aggregates at the end of the year. Reminding the Committee that the President's program was intended “not only to stabilize the price level but also to stimulate growth in the economy,” he warned that because of the slow monetary growth rates “some people were now asking whether the Federal Reserve was deliberately moving to a restraining policy so as to nullify what the Administration, with the support of Congress, was attempting to accomplish.” (*Minutes*, 12/14/71, p. 48-51) Burns reiterated these political concerns in the January 1972 meeting. Burns noted that he would soon have to testify before the Joint Economic Committee of Congress to “give an accounting to the Congress on how the Federal Reserve had been contributing to the national objectives of economic growth and orderly reduction in the rate of inflation” (*Minutes*, 1/11/72, p. 62). He stressed that the program adopted in 1971 emphasized economic growth and had the support of the President and both parties in Congress, concluding that

... unless the aggregates now began to grow at adequate rates he would become fearful about the future of the economy, and he would also feel that there might be some validity in a charge that the System was not supporting the policies of the Administration and Congress. (*Minutes*, 1/11/72, p. 62)

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<sup>5</sup> The Administration's actions, including attempts to stack the Board of Governors with inflationists and leaks to the press falsely accusing Burns of demanding a pay raise, are well-documented (see Ehrlichman 1982; DeLong 1997; Wells 1994; Kettle 1986).

The FOMC's decision to gear monetary policy toward supporting the Administration's growth objectives rather than controlling inflation meant that for the rest of 1972 the Committee essentially ceded responsibility for inflation to the Administration. The attitude is epitomized in a statement by Mr. Maisel (endorsed by Chairman Burns) at the meeting of April 18:

In his judgment, Mr. Maisel continued, to accommodate GNP growth in the second half at the projected rate [10 to 10-1/2 percent] would be consistent with the nation's goals. The Administration had indicated that GNP should grow by at least that much, if not more, and Congress would view such a rate as low. If a problem of excessive expansion developed in 1973, it would not have been created by the Federal Reserve... (*Minutes*, 4/18/72, p. 53-54)

In the same meeting, Mr. Brimmer argued essentially for an abdication of the Fed's responsibility for fighting inflation in light of the NEP.

The significant point was that the Administration had decided [in mid-August 1971] – with the support of the Congress and the Federal Reserve – that the way to solve the problem of inflation was to apply direct controls rather than to slow the rate of economic growth and increase excess capacity. If more effective means of fighting inflation were needed they should be sought in tighter controls, perhaps along the lines the Chairman had suggested, and not through monetary policy. (*Minutes*, 4/18/72, p. 57-58)

An additional barrier to any impulse the Committee may have had to tighten monetary policy in 1972 came from the Committee on Interest and Dividends. In the face of rising aggregate demand, the public was chafing at the Administration's wage and price controls. Controls on interest rates and dividends through the CID were seen as a signal that the burden of price controls would be shared equally across income classes. Members of the FOMC understood that, were the Fed to tighten enough to increase interest rates, the price controls would come under attack. In that event, the Nixon Administration would push back against the Fed, with uncertain consequences for the Fed as an institution. These concerns were discussed on several occasions in the fall of 1972 (see Burns, *Minutes*, 8/15/72, p. 74-75; Hayes, *Minutes*, 9/19/72, p. 47). In September two members of the Committee suggested that the Fed raise its

target for the federal funds rate despite the constraints posed by the CID. Burns spoke in opposition, warning that a decision by the Fed to raise interest rates might cause the CID to set guidelines for interest rates. “If guidelines were established,” Burns argued, “the result would be a confrontation between the Federal Reserve and the Executive establishment – a prospect that was extremely disturbing.” (*Minutes*, 9/19/72, p. 70)

Because of the Fed’s commitment to using monetary policy to promote economic growth, the federal funds rate remained low throughout 1972. The Fed finally moved to a more restrictive policy in January 1973. Weakening economic conditions justified such a move, but a number of changes in the political environment also facilitated the Fed’s decision to tighten. First, the unemployment rate had fallen to a level (around 5 percent) that the public, Congress, and the Administration would accept as close to full employment, so the Fed could not be accused of strangling the recovery prematurely. Second, the 1972 election was over. Finally, the uncertainty about the likely reaction of the Committee on Interest and Dividends to an interest rate increase seems to have been resolved in a way that gave the Fed more leeway than it had had earlier (Burns, *Minutes*, 1/16/73, p. 24).

### **2.3 The 1973 disinflation**

The Fed’s tightening move in January 1973 was only a half-hearted attempt at disinflation. The Fed understood that in the prevailing political environment an outright recession – specifically negative growth or an unemployment rate in excess of 6 percent – was politically unacceptable and therefore unsustainable.

[Mr. Morris] was afraid that if a 6 per cent unemployment rate were to be generated, the consensus between the Administration and the Congress calling for restraint in Federal expenditures might well be destroyed. A 5 per cent unemployment rate might be tolerated for an extended period of time but not a 6 per cent rate. Chairman Burns agreed that a 6 per cent unemployment rate could well lead to a massive Federal budget deficit and also

to a marked easing in monetary policy, thereby laying the foundation for further inflation in the future. (*Minutes*, 6/18/73, p. 33-34)<sup>6</sup>

For this reason the Fed adopted a gradualist approach to disinflation: a modest tightening of monetary policy intended to cause growth to slow but not fall into negative territory, unemployment to creep up into the 5-6 percent range, and the inflation rate to stabilize or decline by a small amount. The Fed never attempted a substantial reduction in inflation.

That the Fed's failure to make progress against inflation in 1973 was intentional and not a result of misunderstandings about the economy is evident from a staff presentation at the March meeting. At this meeting, the staff analyzed alternative monetary policy strategies for 1973-1974 (*Minutes* 3/19/73, Table 8). The analysis presented numerical estimates showing that a tight policy would cause unemployment to rise and inflation to fall by the end of 1974 while a loose policy would have the opposite effect. Mr. Partee, the Senior Economist, acknowledging that the more contractionary strategy was politically unfeasible, advocated a middle ground.

To adopt a substantially more restrictive policy that carries with it the danger of stagnation or recession would seem unreasonable and counterproductive. As unemployment rose, there would be strong social and political pressure for expansive actions so that the policy would very likely have to be reversed before it succeeded in tempering either the rate of inflation or the underlying sources of inflation... The best solution in the present difficult situation, I believe would entail a slowing in the economic expansion to the minimum sustainable rate which would appear to be in the 3 to 4 per cent range. The unemployment rate would tend to drift upward once this slower growth rate had been sustained for a while. Even so, progress in reducing inflation would probably be modest – all that can be expected in today's environment from aggregate demand management measures. (*Minutes*, 3/19-20/73, p. 16-17)

The FOMC adopted Mr. Partee's gradualist policy. According to the staff's projections, the policy would raise the unemployment rate to 5.4 percent while keeping the inflation rate

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<sup>6</sup> Similar statements were made by other Committee members on numerous occasions throughout the year (see for example Mr. Partee, *Minutes*, 3/19-20/73, p. 16-17; Mr. Sheehan, *Minutes*, 7/17/73, p. 43; Mr. Gramley, *Minutes*, 9/18/73, p. 13; Mr. Eastburn, *Minutes*, 9/18/73, p. 48).

steady. This satisfied the political requirement that the unemployment rate remain under 6 percent while sacrificing any hope of a substantial reduction in inflation.

The Fed raised the federal funds rate target gradually through the first half of 1973, from 6 percent in January to 10.5 percent in August. As it did so, Committee members repeatedly gauged the degree of support the policy was attracting from Congress and the Administration. At the June meeting, with the unemployment rate still only 5 percent, Chairman Burns cited the absence of a “sharp attack in the press and in Congress” as evidence that remarked that the Fed appeared to be operating within politically acceptable bounds (*Minutes*, 6/19/73, p. 110)

But in the second half of the year there were indications that economic growth was slowing. As the economy slowed, growth in the money supply fell below announced target ranges. In the eyes of Congress, the money growth targets represented the Fed’s commitment to maintaining economic expansion. As Chairman Burns argued in a conference call on October 10, slow growth in the aggregates would be seen as a violation of this commitment.

System officials had repeatedly stated to Congress and the public that the Federal Reserve intended to pursue a monetary policy that would permit moderate growth of the monetary aggregates. If the System were to allow the period of very low or negative growth in the money stock to continue much longer, it would not only be damaging its credibility; it would be failing to meet its responsibilities to the economy and to the nation. (*Minutes*, 10/10/73, p. 4-5)

In the meeting of October 16 Mr. Morris called for increasing growth in the monetary aggregates, arguing that “Market participants and the public at large had been assured, through statements by the Chairman and in other ways, that the Federal Reserve would not permit the monetary aggregates to contract for a prolonged period, and he was concerned about the possible reactions to a failure to make good on that commitment. (*Minutes*, 10/16/73, p. 47-48)

Mr. Morris advocated again in November for increased money supply growth, arguing that “if a recession did develop by next spring, he would want the record to show that the

Committee had recognized the problems generated by the energy crisis and had moved promptly toward ease” (*Minutes* 11/20/73, p. 91). Chairman Burns expressed his sympathy with this statement. And in December, Mr. MacLaury warned of the political consequences of failing to act against the coming economic slowdown.

... Mr. MacLaury said it was his impression that the Committee had been concerned last winter about possible reactions in the Congress if interest rates had been allowed to rise rapidly at that time. It seemed to him that there would be even greater grounds for concern about reactions if the Committee should fail to evidence in some way its recognition of the change in the economic outlook. The directors of the Minneapolis Reserve Bank did not believe that discount rate action would be appropriate at this time, but they did feel that – to use the words of Chairman Burns – a modest and cautious easing of monetary policy would be desirable. (*Minutes*, 12/18/73, p. 81)

The Fed relaxed its tightening policy slightly in October. By December, with the oil crisis threatening to accelerate the slowdown in growth, the Fed moved to a cautiously expansionary policy. The federal funds rate fell from 10.8 percent in the last week of September to 9.9 percent by the end of the year and 9 percent by February. In moving toward ease members of the FOMC were well aware that they were abandoning the effort to control inflation. Mr. Partee acknowledged as much in the November meeting.

A reduction in money growth to a 4 per cent rate could be expected to slow the rate of inflation significantly by 1975, but at the cost of a protracted decline in real output and a sharp rise in the unemployment rate. Alternatively, if money growth is raised to around a 6-1/2 per cent rate, the consequent strengthening in economic expansion would be likely to hold the unemployment rate at 5 per cent or below until very late in 1975, but at the cost of an acceleration in the pace of inflation... Given the present state of the economy, monetary policy must make its tradeoff between very unsatisfactory choices as to employment and price objectives. I believe that the only feasible course is the middle one. (*Minutes* 11/19/73, p. 18).

Chairman Burns echoed these sentiments in the December meeting, arguing that “however painful it might sound, the System had no choice but to validate price increases that stemmed from supply shortages, because a failure to do so would probably result in unacceptable declines in production, income, and employment.” (*Minutes* 12/18/73, p. 84)

The inflation rate, which was 4.9 percent when the Fed switched to tight policy in the first quarter of 1973, was 8.2 percent in the fourth quarter, with policy now geared firmly toward supporting real activity rather than fighting inflation.

#### **2.4 The 1974 disinflation**

In the early months of 1974 the inflation rate began to rise dramatically. In March, after a period of hesitation due to concern about the weakening economy, monetary policy was tightened. The federal funds rate target was increased from a range of 8.25-9.5 percent to 9-10.5 percent. From there the target range was increased gradually, reaching 11.5-13 percent by July. By the end of the year this attempt at disinflation too would be abandoned before any progress had been made in reducing inflationary pressures.

As in 1973, failure was built into the Fed's strategy from the start. The Fed adopted a gradualist approach in order to avoid triggering a political backlash. The strategy was described by Mr. Wallich in the March meeting in terms similar to those used a year earlier.

... the objective should be to pursue a path of monetary growth such that economic activity continued to expand, but at a rate not necessarily much faster than its potential and perhaps even below. Although that might lead to political problems, real GNP would be rising and the economy would not be going into recession. At the same time, excess capacity would be increasing somewhat, providing some possibility of a gradual reduction in the rate of inflation. He would reject as both substantively and politically unsound a policy of so tight a rein that economic activity failed to recover at all and excess capacity built up rapidly. (*Minutes*, 3/19/74, p. 134-135)

Similarly, in laying out the monetary policy alternatives in the April meeting, Mr. Partee rejected a "substantially more restrictive" policy that might "curb inflationary expectations, with desirable longer-run moderation in the actual rate of price increase" on the grounds that it would require markedly lower growth and higher unemployment (*Minutes* 4/16/74, p. 50). Thus a meaningful reduction in inflation was ruled out from the beginning.

Because of the severity of the inflation problem the public, Congress, and the President seemed to have a greater tolerance for tight policy than they had had in 1973. This perception seems to have been a factor in the FOMC's willingness to raise interest rates in spring and summer. In the March meeting, Chairman Burns remarked that "at the present time neither the Administration nor the Congress was urging the Federal Reserve to pursue a more expansionary course," and that in fact one of the "distinguished liberal members of the Congress" had told him that the Fed was not doing as much as it could to fight inflation. (*Minutes*, 3/19/74, p. 139). In April Mr. Morris and Chairman Burns noted the lack of complaints from Congress about the interest rate increases that had taken place over the previous two months (*Minutes*, 4/16/74, p. 72). In June, Mr. Balles reported that "Congressman Ullman, ranking majority member of the House Ways and Means Committee, had expressed his consent to a tight policy in a recent speech and that he thought that a majority of the Congress would concur in the System's efforts not only to slow the actual rate of price advance but also to dampen inflationary expectations." Chairman Burns concurred that support for the Fed's policy remained strong (*Minutes*, 6/18/74, p. 61-62).

In the June and July meetings, as the economy weakened, Committee members debated how much slack in the economy the public and political system would tolerate. In June Mr. Wallich argued that the public would support a reduction in growth to the 2 to 3 percent range but would not tolerate an outright recession (*Minutes*, 6/18/74, p. 68). In July several Committee members argued that support for the Fed's efforts in fighting inflation was strong enough that Congress and the public would tolerate growth rates as low as one percent. (Mr. Mayo, *Minutes*, 7/16/74, p. 25; Mr. Hayes, *Minutes*, 7/16/74, p. 32-33; Mr. Francis, *Minutes*, 7/16/74, p. 32-33). In September, Mr. Morris repeated the notion expressed in earlier meetings that an unemployment rate of 6 percent was the maximum that was politically sustainable. A higher rate,

he argued, “would run the risk of generating political forces in favor of efforts to reduce the level of unemployment” which would force the abandonment of the Fed’s restrictive policy (*Minutes*, 9/10/74, p. 83). Mr. Wallich and Mr. Sheehan concurred, Mr. Wallich arguing for a policy that would keep real GNP growth at around 2 percent per year and Mr. Sheehan expressing a willingness to see the unemployment rate rise to 6.5 to 7 percent (*Minutes*, 9/10/74, p. 68-70). Chairman Burns summarised his view of the Fed’s political room for maneuver in the July meeting:

... in his appearance before the House Ways and Means Committee yesterday... he had expressed his view that little or no economic growth could be expected for some months, and that that outlook should be accepted as a matter of policy under present circumstances. None of the members of the Ways and Means Committee, not even the more liberal members, expressed any shock or criticism. More generally, in his many recent conversations with Congressmen he had found widespread acceptance of the need for slow economic growth; they reported that their constituents were more anxious about inflation than about unemployment. (*Minutes*, 7/16/74, p. 34)

The Fed maintained interest rates at a level above 11 percent through September. By October, however, the costs of disinflation appeared likely to exceed what the public and political system were willing to bear. In October the unemployment rate rose above the 6 percent threshold for the first time and was forecasted to rise to 7.5 percent by the end of 1975. GDP growth was estimated to be strongly negative for the first time as well. Mr. Morris and Mr. Partee argued that the coming recession would erode public support for the Fed’s anti-inflation policy. Furthermore, the Administration could be expected to adopt policies that would counter the Fed’s efforts and, in the long run, lead to more inflation (*Minutes*, 10/15/74, p. 31). Mr. Morris drew the implications for monetary policy.

Mr. Morris said he believed that monetary policy had to be formulated on the assumption that the deeper the recession proved to be, the greater were the probabilities that Government policies adopted to combat it would produce too sharp a recovery. In order to restrain the contraction in business activity to the sort of mild recession that would be productive in reducing the rate of inflation over the longer run, the Committee had to be

willing to tolerate enough of a reduction in the Federal funds rate to raise the rate of monetary growth. (*Minutes*, 10/15/74, p. 69)

Mr. Sheehan also advocated a substantial easing, noting that “the System was particularly vulnerable because of the way in which members of Congress perceived current monetary policy” (*Minutes*, 10/15/74, p. 73). The Committee ultimately adopted a modest easing at this time due to its continued concern with inflation.

Beginning in October, then, the Fed switched to a cautiously expansionary policy, lowering the federal funds target range to 9-10.5 percent from the 10.5-12 percent range set in September. The modest easing was continued in the months following, turning to a strongly expansionary policy in February 1975. By March the target range was 4.75-5.75. The February decision was clearly justified by the severity of the recession that was unfolding. The Fed may also have felt that it had some leeway to ease because it projected inflation to fall somewhat over the coming year (in this case the Fed’s forecasts were on target: the actual inflation rate for 1975 was 7.6 percent, compared to the Fed’s forecast in February of 7.25 percent). At the same time the Committee felt pressure from various sources for a pro-growth stance.

Chairman Burns opened the February meeting with an acknowledgement that Congress was placing considerable pressure on the Federal Reserve. He pointed in particular to a concurrent resolution proposed by Senators Proxmire and Humphrey instructing the Fed to increase the growth rate of the monetary aggregates. Stronger growth in the money supply, which Burns argued had been the Fed’s policy in any case, would help him make the case against this piece of legislation (*Minutes*, 2/19/75, p. 7-9). Mr. Balles argued that a reduction in the federal funds rate was dictated by “both the economics of the situation and Congressional concern” (*Minutes*, 2/19/75, p. 61). Political concerns were mentioned so prominently at this meeting that Chairman Burns felt compelled to argue that the Committee should not cave in to

political pressures (*Minutes*, 2/19/75, p. 61-62). But this statement brought a rebuttal from Mr. Eastburn.

Finally, while the Federal Reserve System was an independent entity, its actions were being closely observed. He [Mr. Eastburn] was concerned that there would be critical public reaction to continuation of a monetary policy that had produced very little growth in the narrow money stock over the past 6 months, a period in which the economy was moving into the worst recession since the 1930's. Continued pursuit of such a policy and failure to stimulate the desired rates of monetary growth promptly could have some undesirable long-run implications. With those thoughts in mind, Mr. Eastburn said, he... would press to achieve more rapid monetary growth as quickly as possible. (*Minutes*, 2/19/75, p. 68)

## **2.5 The expansion of 1975-1979**

As shown in Figure 4, from 1976 to 1979 the U.S. economy experienced strong growth, falling unemployment, and relentlessly increasing inflation. In retrospect it is clear that the Fed should have begun to tighten seriously toward the end of 1976, when the annual inflation rate topped six percent, or the end of 1977 when it reached 6.8 percent, or towards the end of 1978 when it reached 7.3 percent, or early in 1979 when it topped 8 percent. But the Fed waited until October 1979 to launch an aggressive assault on inflation. The political constraints hypothesis offers a persuasive explanation for the Fed's failure to tighten in the face of rising inflation.

While the economy recovered slowly beginning in the spring of 1975, the Fed maintained a cautiously expansionary policy. Leading Democrats in Congress were urging a more expansionary policy, going so far as to introduce legislation forcing the Fed to increase its monetary growth rates. However, the Ford Administration strongly supported the thrust of the Fed's policy and the Fed may have felt that this support provided it with "cover" to resist the entreaties of Congress (Kettl, pp. 131-134).

The political environment changed with Jimmy Carter's victory in the 1976 election. The Fed had eased somewhat as the economy weakened in the second half of 1976, but not by enough to prevent the unemployment rate from rising to almost 8 percent by the end of the year.

Carter had criticized the Fed's cautious stance during the campaign, so it was doubtful that once in office he would provide the Fed with the political cover against pressure from Congress that President Ford had provided. And Carter had proposed a fiscal stimulus package in the campaign that was bound to work against the Fed's anti-inflation policies. The Fed's position was complicated further by the fact that Chairman Burns' term of office would end in January 1978, and by all accounts he had a strong desire to be reappointed.

The first sign that the new Administration's desire for economic expansion would weaken the Fed's commitment to reducing inflation came in the FOMC's discussion of its long-run monetary targets in January 1977. The Committee's policy had been to gradually reduce the target ranges for the monetary aggregates: in the previous year, for example, the range for M1 growth had been reduced from 5-7.5 percent to 4.5-6.5 percent. A comparable reduction was on the table again at this meeting, but Chairman Burns argued that such a move would bring the Fed into conflict with the new Administration.

[T]he new administration has proposed a fiscal plan for reducing unemployment and any lowering of monetary growth rates at this time would I'm quite sure be very widely interpreted... as an attempt on the part of the Federal Reserve to frustrate the efforts of a newly elected President, newly elected Congress, to get our economy, to use a popular phrase, "moving once again." (*Transcript*, 1/18/77, Tape 7, p. 1-4)

To avoid the perception that the Fed's policies were in conflict with those of the new Administration, Chairman Burns recommended that the Fed maintain the current target ranges for M1. Since Congress and the public paid less attention to M2 and M3, he argued, the Fed would make a small reduction in the lower bound of the target range for those variables. The result would be that the midpoints of the M2 and M3 range were precisely what they were six months earlier, and "this would be duly noted in our statement to the Congress." The Committee adopted Burns' proposal despite the reservations of several members of the Committee that the reduction in the M2 and M3 targets was purely cosmetic (*Transcript*, 1/18/77, Tape 7, p. 17;

Tape 8, p. 5,9). When the Committee reviewed the long range targets again in April and July, there were more calls for tightening. Burns again proposed superficial reductions that the Committee accepted. In the April meeting Mr. Volcker argued that Burns' minimalist approach was appropriate given the political environment.

If I really had my druthers and didn't have to – if we were living really in an apolitical climate I suppose – I would have bought both ends of your [Burns'] thinking. I would have liked to see the M1 range reduced by half a percentage just on the low side and some reduction on both sides of the M2 and M3... Putting all this together I do think we ought to have some reduction in something. The easiest thing is the upper end of the range and the most meaningful thing, as minor as it is, the upper end of the range on M2 and M3 by a half as you suggested... It's not very extreme in the context that we're talking, but just a half a per cent on the upper end of M2 and M3 is my margin of being satisfied that we have taken the minimum steps that we should take at this time. (*Transcript, 4/19/77, Tape 5, p. 11*)

In July, Burns defended his approach on the grounds that a serious reduction in target ranges would increase the likelihood that Congress would pass legislation unfavorable to the Fed (the bills that became the Federal Reserve Reform Act of 1977).

Gentlemen, we're faced with a very hard decision. Speaking personally for a moment, I wish I could join my colleagues who would – were inclined to move towards somewhat lower growth rates. I have to – I wish I could. Tempermentally, yes. That's what I would prefer to do. But I do have an obligation to this Committee and to the System, as well as to the country. I'll have to testify before the [Congressional] Committee, I will have to defend whatever this Committee decides... I don't mind being attacked, but I want to be in a position, really, to answer the attacks in an effective manner. And I find it very difficult to do that at the present time... and I am concerned about the legislation that we have before the Congress. (*Transcript, 7/19/77, Tape F, p. 1-3*)

As a result of the changed political environment, therefore, the Fed slowed the pace at which it was reducing its target ranges for monetary growth. At the same time, the Fed was allowing actual money supply growth to exceed the targets, reconciling the deviation using the policy of "base drift" (see e.g. Broadus and Goodfriend, 1984). For some at the FOMC, base drift seems to have been consciously employed as a way of circumventing the targets and

avoiding a situation where the federal funds rate would have to increase significantly. Mr. Wallich, for example, was explicit about this in the July meeting.

I would agree with the proposed proposal, Mr. Chairman, that you've made... But as a matter of principle, I think we are maneuvering here somewhat. We're not hitting our targets and we're using base drift to avoid being confronted with situations where interest rates would rise very sharply. I don't think this is the kind of expansion that can stand sharp increases in interest rates and so I would like to see us take this action with the understanding that if we overshoot, well then, we'll take another look. We do not absolutely hold to this target... I think one cannot take for granted that we can steadily continue this course without [loosing?] a rise in interest rates. That could be very troublesome. (*Transcript*, 7/19/77, Tape E, p. 5-6)

There developed a clear disconnect between the Fed's professed goal of gradually reducing inflation by restricting the growth rate of the money supply and its unwillingness to allow interest rates to rise fast enough to reduce output growth. Mr. Roos called the Committee to task on this point in a remarkable series of exchanges. In September 1977, for example, Mr. Roos asked whether it was

... not possible by the adroit conduct of monetary policy for this Committee really to have a very real effect on the trend of M1 and M2, instead of explaining afterwards why they did expand beyond what we wanted – what were our targets. I don't know if I'm making my question clear, but I find myself frustrated sometimes in this regard... if our stated, and I assume understood objective is to gradually inch down the rate of inflation, and this has been often repeated, don't we have some commitment to that goal even if it means some temporary dislocations of interest rate levels and things like that. I mean, in other words, isn't that part of our mission too? (*Transcript*, 9/20/77, Tape 6, p. 1)

Chairman Burns responded that other goals took precedence over achieving the monetary targets.

Our job is not to worship at the shrine of a specific number that we agree upon at a given time. To the extent that we are going to worship at any shrine, our shrine is the performance of the economy. (*Transcript*, 9/20/77, Tape 6, p. 2)

Similar exchanges occurred in January 1978 (*Transcript*, 1/17/78, p. 4-5) and March 1978 (*Transcript*, 3/21/78, p. 34). In September Roos again expressed frustration with the Committee's acquiescence to high money supply growth rates.

Roos: ... As we went around the table, we all seemed to recognize that we do face a 7-1/2 to 8 percent rate of inflation now. Do we as a group feel that this is preordained because of circumstances that we can't control? I'm concerned that we seem to feel well, it may be 8 percent, and if it's 8 percent we've done our job well. I'm really not trying to be critical, but is our monetary policy responsibility such that we should maybe discuss whether we're satisfied to see the economy drift into an 8 percent inflation rate? And if not, are there things that we can do to affect this? ... Are we in any way the masters of what happens, or are we merely observers on the sidelines? I'm lost.

Miller: I take the fifth.

Partee: I don't want to comment. (*Transcript*, 9/19/78, p. 17-18)

Chairman G. William Miller (who had succeeded Burns early in 1978) eventually responded to the effect that the modest reduction in economic growth in recent quarters was a sign of success, that the Fed had to wait for the Administration to take the lead on fighting inflation, and that recession needed to be avoided at all cost (*Transcript*, 9/19/78, p. 17-18).

By early 1978 signs of rapidly increasing inflationary pressures were becoming impossible to ignore. From 1978 to mid-1979 there were two impediments to the Fed's taking action against inflation. First, the FOMC was unwilling to act against inflation without leadership from the Carter Administration. Second, the FOMC was unwilling to contract monetary policy enough to risk pushing the economy into recession. The result was policy paralysis.

Chairman Miller, like Burns before him, believed that recessions worsened the problem of inflation by causing the government to adopt an expansionary fiscal policy which the Federal Reserve would have to accommodate (see e.g. Miller 1979, p. 3). This logic led Miller to argue against monetary restraint (see, for example, *Transcript*, 7/18/78, p. 42). Instead, Miller spent much of his term advocating for a coordinated assault on inflation, led by the Administration, with the Fed in a supporting role. Miller was frustrated at the Administration's and Congress' inaction. For him, a Fed-initiated attack on inflation would only be a last resort.

As an aftermath of a series of events over ten years, it's hard to coalesce leadership in the government. It's nobody's fault, but there has been a fractionalization of leadership after all these events. Therefore, Congress doesn't stick too much to anybody's program.... And the Administration has many factions pushing it in this direction and that direction. I personally think time is very short for them to take some more believable steps in fighting inflation and if it's not done, inflation is going to be left to the Federal Reserve and that's going to be bad news. (*Transcript*, 3/21/78, p. 33)

The FOMC therefore spent most of 1978 and early 1979 waiting for the Administration to act against inflation. The Administration announced anti-inflation programs in the spring and fall of 1978 which encouraged some on the Committee to advocate tougher action, but uncertainty over the Administration's commitment to the programs prevented the Fed from beginning a major contraction.

By the summer of 1979 the rise in inflation was regarded as a real crisis. In June and July, for the first time, a number of members of the Committee began to argue that the Fed needed to take action even if it meant a greater risk of recession (see e.g. Mr. Rankin, *Transcript*, 6/27/79, p. 6; Mr. Wallich, *Transcript*, 7/11/79, p. 15; Mr. Coldwell, *Transcript* 7/11/79, p. 17). Paul Volcker was appointed Chairman in August, a clear signal that the Carter Administration expected the Fed to take action. In October the Fed initiated the contraction that would finally bring an end to the Great Inflation.

## **2.6 The 1979-82 disinflation**

From the first meeting at which Paul Volcker was chair he and other Committee members recognized the importance of public support for any serious attempt at controlling inflation. Throughout the disinflation period Committee members remained concerned about political support and took comfort in their perception that that support was forthcoming. Political support took two forms: a willingness of the public and political community to tolerate a recession as long as there was significant progress toward controlling inflation, and acceptance of the idea

that the Federal Reserve would exercise its responsibilities as guardian of price stability independently of the rest of government.

Chairman Volcker spoke at length about the challenges facing the Fed in the August meeting. He laid out a strategy in which the Fed would make a small move towards tightening immediately, but “we ought to keep our ammunition reserved as much as possible for more of a crisis situation where we have a rather clear public backing for whatever drastic action we take” (*Transcript*, 8/14/79, p. 22-23). An important consideration for Committee members as they geared up for an attack on inflation was their perception that the President, Congress, and public would support such a move. Mr. Mayo, for example, argued that the Fed should take advantage of the opportunity provided by a growing consensus that inflation was the country’s most serious problem.

Inflation is our number one enemy. This has been declared far and wide, by the President of the United States and the leaders of the Congress as well as by the Federal Reserve... I think this is an opportunity, while everybody is hating inflation so much, to move ahead and tighten somewhat (*Transcript*, 8/14/79, p. 31)

In the September meeting Chairman Volcker noted that the Fed had support for tightening from sources not ordinarily expected to be hawkish on inflation such as the Congressional Black Caucus. (*Transcript*, 9/18/79, p. 34)

When the decision to tighten dramatically was made in the October meeting, Chairman Volcker made a point of informing the Committee that there was strong support for a policy shift from the Administration (*Transcript*, 10/6/79, p. 9). Following the meeting Volcker made a number of public appearances at which he emphasized the political support for the Fed’s actions. Three days after the meeting, for example, Volcker spoke with the press following an address to the American Bankers’ Association.

Restrictive monetary policies are never calculated to win popularity contests; yet there has been acceptance of the need of restraint even at rates of interest that are almost

outside the range of our historical experience. Indeed, the Congressional committees responsible for oversight of the Federal Reserve have been among the strongest voices urging that we set forth and adhere to monetary targets, reducing them over the years ahead as an essential part of the effort to restore price stability... I would note too that the “National Accord” recently reached between the Administration and American labor leadership plainly recognized the threat to full employment, incomes, investment, and growth inherent in the inflationary process, and for those reasons gave “top priority” to the “war on inflation”. (Volcker 1979, p. 5-6)

Maintaining political support for the program remained a priority and concern once the new policy was in place. In March, further signs that the economy was headed for a recession prompted a discussion about whether it might be prudent to pull back on the degree of restraint. Chairman Volcker argued that with the political support the Fed had for its current policies, such a move would be disastrous.

The worst thing we could do is to indicate some backing-off at this point when we have announced anti-inflation program. We have political support and understanding for what we have been doing. People don't expect it to be too easy. There is an understanding that a lot of burden has been placed on credit policy, and there's a willingness to be supportive for the moment in that connection. I would not give all that much weight to the degree of support we're going to get if this is dragged out indefinitely and we have to go through this process once again. (*Transcript*, 3/18/80, p. 36)

In the winter of 1980-81, gloomy economic statistics again prompted a discussion as to whether it was time for the Fed to reverse course. Chairman Volcker urged Committee members to stay the course, assuring them that there was still sufficient support for a reduction in monetary targets in Congress and in the Administration (*Transcript*, 2/2-3/81, p. 129). The meeting of July 1981 also saw a vigorous discussion of how long the Fed could hold out in its fight against inflation. Mr. Schultz argued that the public was growing impatient with the lack of success against inflation, and that the Committee needed to make a major push over the next four quarters to reduce inflation or see support for its program fall apart (*Transcript*, 7/6-7/81, p. 45). Mr. Guffey argued that at this point, given support from the Administration, the Committee should not make the type of mistake it had always made in the past.

Guffey: ... Secondly, it does seem to me that we've made some real progress against inflation and that the public is at least willing to accept that... And one last observation... Historically, the Federal Reserve has always come up to the hitching post and then backed off simply because the Administration and the Congress have thrown bricks at us or have not been supportive of a policy of restraint. Through the course of recent history at least, we've backed off and we've made a mistake each time. I think we have an opportunity this time to carry forward what we should have done before because for the first time ever we do have, for whatever length of time, the support of the Administration at least. So, we ought to take advantage of that opportunity. (*Transcript*, 7/6-7/81, p. 55)

The Reagan tax cuts put the Fed in a familiar bind. In the past, it was understood that the Fed would accommodate rather than resist an expansionary fiscal policy designed to stimulate growth. This time, however, the Committee did not back off. In May 1981, for example, Mr. Solomon argued that the tax cuts and defense spending increases proposed by the Administration required the Fed to raise interest rates further than it would have done otherwise. "It seems to me that we are better off to be very firm and vigorous in our responses early in the game... I feel we are better off trying to nip this now than trying to be more gentle in our approach..." (*Transcript*, 5/18/81, p. 25)

The Fed's response to the Reagan tax cuts is emblematic of the difference between Volcker's attitude toward macroeconomic policy coordination and that of his predecessors. For Burns and Miller, the fact that monetary contraction alone was so costly made it necessary for government to take the lead in reducing inflation through fiscal and regulatory policies. Monetary policy would contract at a pace dictated by the government's success in those areas. Volcker placed monetary policy at the forefront of the fight against inflation, with other policies treated as complementary. While challenging government to implement reforms in order to make the transition to low inflation as painless as possible, the Volcker Fed was willing to fight inflation by itself if necessary.

By the end of 1981, Committee members were firm in their determination to carry through with the disinflation despite a serious recession that had already pushed the unemployment rate past 8 percent, and despite the lack of cooperation from the Reagan Administration. The contrast with 1970, 1973, and 1974 could not be more stark, and reflects the fact that by this time the political environment was such that the Fed now had a mandate to fight inflation at high cost and almost entirely on its own. The inflation rate began to fall quickly beginning in the first quarter of 1982, and by the end of the year the Fed was able to switch to an expansionary policy with inflation finally under control.

### **3. THE MISMEASUREMENT AND MISUNDERSTANDINGS VIEWS**

Orphanides, Romer and Romer, and Nelson have argued that mismeasurement of the economy's productive capacity and misunderstanding of the relationship between monetary policy and inflation were the primary causes of the poor monetary policy decisions that created the Great Inflation. The argument sketched out in the preceding section, by contrast, is that the impetus for adoption of overly expansionary policies at key turning points during the Great Inflation was political considerations, not technical errors. How do we reconcile these two views?

The key point to make is that despite whatever misperceptions the Fed might have had, at none of the turning points identified above did the Fed embark on an expansionary policy in the belief that inflation was under control. This is evident from Figures 1-5. When the decision was made to ease beginning in spring 1970, for example, forecasts of inflation were higher than they had been at the beginning of the disinflation in late 1968. Inflation was suppressed due to price controls during the loose policy period in 1972. However, the Minutes for the 1972 meetings make clear that the Committee was aware that inflationary pressures remained strong. Members repeatedly expressed concern about stubbornly high inflation expectations and price increases in

some sectors such as food (e.g. Mr. Winn, Minutes 3/21/72, p. 69; Mr. Coldwell, Minutes 4/18/72, p. 27; Mr. Robertson, Minutes 6/20/72, p. 78). The Fed eased policy in October 1973 at a time when its inflation forecasts hovered in the 5-6 percent range, compared to the 3-4 percent range at the time the disinflation attempt began. When the next disinflation attempt was abandoned in October 1974, one- to two-quarter ahead forecasts of inflation were near eight percent, up from six percent when the disinflation attempt began. Inflation forecasts rose continually through the loose policy period of 1977-78, and there are no statements in the Minutes and Transcripts from this period suggesting that Committee members thought inflationary pressures were weakening.

There is also ample evidence that on those occasions when the Fed switched to a looser monetary policy it was aware of the tradeoff it was making between growth and inflation. In the meeting of November 1970, for example, the economic staff presented estimates that a higher rate of money supply growth would reduce unemployment by about half a percentage point relative to what it would be under more conservative policies, at the cost of an inflation rate about 0.2 percentage points higher. Mr. Partee argued that “this would be a price worth paying to halt the rise in the unemployment rate and to turn it down before next year is out.” (Minutes 11/17/70, p. 35). Similar estimates were presented to the Committee in March 1973, as noted above, and at other times.

The Fed’s overestimates of the economy’s productive capacity and its tendency to attribute much of the inflation of the period to nonmonetary factors probably caused it to underestimate the inflationary consequences of its actions. But ultimately the Fed chose to inflate at key turning points because of political considerations rather than technical errors.

#### **4. EMPIRICAL EVIDENCE**

In this section I test whether there is a statistical correlation between political pressures and monetary policy actions. My measure of political pressures is based on statements by members of the FOMC recorded in the minutes and transcripts of FOMC meetings over the period 1969 to 1982. I collected statements by participants of the meetings that refer to political implications of expansionary or contractionary monetary policy. I included statements referring to reactions on the part of the executive, Congress, or the public to FOMC policy choices as well as references to the priority these groups placed on unemployment versus inflation reduction. Statements were included whether the speaker indicated that the Fed should accommodate or resist the external pressures.

I found 140 statements which are collected in an Appendix available from the author. I created dummy variables equaling one in months when at least one statement of a particular type was made by a particular member of the FOMC and zero otherwise. Specifically, the variable `LOOSE_CHAIR` represents months in which the Fed Chair made statements referring to pressures in favor of loose (expansionary) policy or in opposition to tight (contractionary) policy (21 cases in the sample); `TIGHT_CHAIR` represents months in which the Fed Chair made statements referring to pressures in favor of tight policy or opposed to loose policy (17 cases); and `LOOSE_OTHERS` (44 cases) and `TIGHT_OTHERS` (19 cases) represent months in which similar statements were made by other members of the FOMC.<sup>7</sup>

Similar variables have been used in previous research that asks whether the banking industry, Congress and the executive branch (Havrilesky, 1993; Froyen et al., 1997) or non-financial private sector groups (Weise, 2008) influence monetary policy decisions. In those papers dummy variables constructed from public statements by these groups are interpreted as signals of political pressure. The variables used in this paper are slightly different in that they

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<sup>7</sup> The number of cases adds up to less than 140 because some months contained multiple statements.

represent signals received or perceived by members of the FOMC rather than all signals sent by the groups seeking to influence monetary policy. I interpret the statements as evidence that the members of the FOMC were aware of external political pressures in one direction or the other during a given month.

Figures 6 and 7 plot the loose and tight statements made by the Chair and other members of the Committee. For the purpose of clarity loose statements are coded as -1 and tight statements as +1. Shaded areas in the graphs represent periods of loose and tight policy as defined in Table A1. As shown in Figure 6 there is some correspondence between signals reported by the Chair and the general stance of monetary policy: “loose” signals are reported more frequently in periods of loose policy while “tight” signals are somewhat more frequent during periods of tight policy. The correlation between the policy stance and signals reported by other committee members, shown in Figure 7, is weaker: signals tend to be distributed fairly evenly across policy stances. On close examination of both figures it appears that loose signals appear more frequently toward the end of contractionary periods and tight signals appear more frequently toward the end of expansionary periods. Such a pattern would be consistent with the hypothesis that major policy changes were driven in part by political pressures.

Tables 1A-1F quantify the correlation between the frequency of signals and the stance of monetary policy. Table 1A shows “contingency tables” for the frequency of loose and tight statements by the Fed Chair over periods of loose and tight monetary policy. The left half of Table 1A, for example, shows that of 21 statements by the Chair indicating pressure for loose policy, 19 of them occurred during periods of loose monetary policy and only two during periods of tight policy. The right half shows that of 17 statements by the Chair indicating pressure for tight policy, ten occurred during periods of tight policy and only seven during periods of loose policy.

If loose and tight policy statements were distributed independently of the monetary policy stance, we would expect 90.1 no statement/loose policy combinations in the upper left quadrant of Table 1A.<sup>8</sup> Likewise we would expect 56.9 no statement/tight policy combinations, 12.9 loose statement/loose policy combinations, and 8.1 loose statement/tight policy combinations. Pearson's  $\chi^2$  test compares the actual and expected count in each cell of the table to test independence (see Agresti, 1990, p. 47). For a 2x2 contingency table the test statistic is distributed  $\chi^2$  with one degree of freedom. The  $\chi^2$  test reported in Table 1A rejects the hypothesis that loose statements by the Chair and the policy stance are independent at the one percent significance level. It rejects the hypothesis that tight statements by the Chair and the policy stance are independent at the ten percent level.

We can also test directly the hypothesis that the probability of observing a signal is the same during periods of loose monetary policy and tight monetary policy. Let  $\pi_i$ ,  $i=\{L,T\}$ , be the probability that a signal is observed during loose (L) or tight (T) periods. For a particular type of signal, say a statement from the Fed Chair indicating pressure for loose policy, we wish to test the hypothesis that  $\pi_T - \pi_L = 0$ . The sample frequency  $p_i$  has expected value  $\pi_i$  and variance  $\pi_i(1 - \pi_i)/n_i$ , where  $n_i$  is the number of expansionary or contractionary periods in the sample. Then  $E(p_T - p_L) = \pi_T - \pi_L$  and  $V(p_T - p_L) = \pi_T(1 - \pi_T)/n_T + \pi_L(1 - \pi_L)/n_L$ . We estimate the variance using sample frequencies. The test statistic  $z = \frac{p_T - p_L}{\sqrt{V(p_T - p_L)}}$  is asymptotically distributed standard normal (see Agresti, 1990, p. 55). Tables 1A-1F report the z statistic and p-value for each case. In the left half of Table 1A, the probability of observing a loose statement is 0.18 (19/103) during loose periods versus 0.04 during tight periods. The z statistic for the difference in the frequency of loose statements is -3.51, meaning we reject the hypothesis that the probability of observing an easing or tightening signal from the Chair is the same across policy stances at the one percent

<sup>8</sup>  $\text{Prob}(\text{no statement}) * \text{Prob}(\text{loose policy}) = (147/168) * (103/168) = 53.6 \text{ percent} = 90.1 \text{ cases.}$

significance level. For the right half of the table, the probability of observing a tight signal is 0.15 during tight periods and 0.07 during loose periods. The z statistic is 1.68, so we reject the hypothesis that the probability of a tight signal is equal across policy stances at the ten percent level.

Table 1B repeats these tests for statements made by FOMC members other than the Chair. While loose statements are more likely to occur during tight periods and tight statements are more likely to occur during tight periods, the differences are not statistically significant.

Tables 1C and 1D examine the frequency of statements during loose periods. In each contingency table, the first column refers to periods of expansionary monetary policy up to three months prior to a switch to contractionary policy. The second column refers to the three months leading up to and including a switch to tight policy. In all cases periods of tight policy other than the first period of a tight policy episode are excluded. The left half of Table 1C shows that of 17 loose statements by the Chair during periods of expansionary policy, none occurred in the last three months of the period. The right half of Table 1C shows that four of nine tight statements occurred in the three months leading up to a decision to tighten. Statistical tests may be unreliable in this case because of the small number of pre-tightening periods and statements. Taken at face value, however, the tests indicate that we reject the hypothesis that the probability of observing these statements is equal early and late in an expansionary policy period. Specifically, statements referring to pressure for tightening occur with significantly higher probability during the three months preceding a switch to tight policy. Table 1D repeats the analysis for other members of the FOMC. While loose statements occur with lower probability and tight statements occur with higher probability in the three months prior to a tightening, the differences are not statistically significant.

Finally, Tables 1E and 1F conduct a similar analysis for periods of contractionary monetary policy. Table 1E shows that loose statements by the Chair are proportionately more frequent in the three months leading up to a decision to switch to expansionary policy. The  $\chi^2$  test rejects the hypothesis that the frequency of statements and the policy stance are independent, but the z test fails to reject the hypothesis that loose statements occur with the same frequency across policy stances. Statements referring to pressures to tighten are significantly more frequent in the three months prior to a decision to tighten. Table 1F shows that the same pattern exists for statements by other members of the Committee – loose statements are proportionately less frequent in the three months prior to a decision to tighten while tight statements are proportionately more frequent – but again the differences are not statistically significant.

The lesson from Table 1 is that periods of loose (tight) policy tend to coincide with periods in which the FOMC was aware of pressure for loose (tight) policy. Also, transitions from tight to loose or loose to tight policy tend to occur shortly after the FOMC receives signals of political pressure for such a switch. The correlations are stronger for signals received by the Chair than for those received by other members of the Committee.

It is possible that FOMC member statements and the Fed's monetary policy stance are correlated simply because the Fed and political actors share a preferred monetary policy response to changes in unemployment and inflation. A key test of the hypothesis that Fed policy was affected by political considerations is to see if the correlation remains after controlling for the state of the macroeconomy. I therefore estimate a Taylor rule for the period of the Great Inflation, augmented by the FOMC statement dummy variables. The model is similar to that in Orphanides (2004). The Fed is assumed to adjust the federal funds rate target gradually toward its desired level, so that

$$f_t^T = \rho_1 f_{t-1}^T + \rho_2 f_{t-2}^T + (1 - \rho_1 - \rho_2) [\alpha + \beta \pi_{t,h}^e - \gamma \hat{u}_{t,k}^e] + \delta X_t + \varepsilon_t \quad (1)$$

The frequency of the data is FOMC meetings (so period  $t$  is the current FOMC meeting and  $t-1$  is the previous meeting). The dependent variable  $f_t^T$  is the midpoint of the target range for the federal funds rate. I use Greenbook forecasts as proxies for the Fed's projections of future inflation and unemployment:  $\pi_{t,h}^e$  and  $\hat{u}_{t,k}^e$  are the average of the current- through  $h(k)$ -quarter ahead Greenbook inflation and unemployment gap forecasts available at the time  $t$  FOMC meeting. The unemployment gap is the Greenbook forecast of the unemployment rate minus the target rate of unemployment. I assume that the Fed's target for unemployment is equal to four percent until January 1970, rises linearly from that date, reaches 6 percent in September 1979, and stays at that level through 1982. This progression reflects the conventional wisdom (documented in various issues of the Economic Report of the President and FOMC Minutes and Transcripts as well as in research by Orphanides and Williams (2002) that during the 1970s policymakers gradually became aware that the four percent unemployment target established in the 1960s was too low. The parameter  $\alpha$  is the long-run average federal funds rate target, incorporating the Fed's estimate of the natural real rate of interest and the target for inflation. Finally,  $X_t$  is a vector of dummy variables for statements about political pressures made during the period  $t$  FOMC meeting.

I estimate equation (1) using nonlinear least squares for  $h=1$ ,  $k=0$ . (Results are essentially the same for other choices of  $h$  and  $k$ .) Estimates of this regression are reported in Table 2. The first column shows the estimated regression excluding the statement dummies for the period January 1969 – September 1979. All coefficients have the expected signs and are precisely estimated. As in Orphanides (2004), the Fed is estimated to have followed a very activist policy as evidenced by the strength of the response to the unemployment gap. The results in Table 2 show that the Fed followed a destabilizing monetary policy rule in that it raised the federal funds rate less than one-for-one in response to changes in expected inflation. This result is consistent

with that in Clarida, Gali and Gertler (2000), but contrary to Orphanides' findings.

Experimentation with different model specifications showed that the difference is due to the use of the unemployment gap instead of the output gap as in the Orphanides paper; it is not due to the different frequency of data, choice of dependent variable, or sample range.

The second column reports regression results for the same sample range with political statement dummy variables added. There is a strong correlation between political statements made by the Fed chair and monetary policy decisions: on average, controlling for the expected inflation rate and output gap, the federal funds rate target is set a quarter of a point lower when the Chair references political pressures towards loose policy in the FOMC meeting and a quarter of a point higher when he mentions pressures towards tight policy. Both of these effects are statistically significant at standard significance levels. Statements by other committee members referencing pressure for tight policy are associated with a federal funds target 18 basis points higher on average. This effect is statistically significant at the 10 percent level. References by other committee members to pressures for loose policy have essentially no effect. These results are consistent with the unconditional correlations discussed above.

The last three columns of Table 2 report results for sample periods ending in December 1980, December 1981, and December 1982 respectively. Adding data from the Volcker disinflation increases the estimate of the response to inflation, consistent with Clarida, Gali and Gertler's finding that after 1979 the Fed adopted a stabilizing monetary policy rule. The evidence for political influence over the Fed's policy decisions also weakens when we add data from the Volcker disinflation. The estimated effect of statements by the Chair referring to pressures for loose policy falls in magnitude and becomes statistically insignificant. The estimated effect of tight policy statements by the Chair is somewhat stronger when the sample is extended, but this effect becomes statistically insignificant as well. There is wide variance across sample ranges in

estimates of the effect of loose policy statements by Committee members other than the chair: the effect is strong and statistically significant for the sample ending in December 1981, but not significant in samples ending in 1980 or 1982. The estimated effect of tight policy statements by others on the Committee is never statistically significant. One explanation for these results is that while there was a great deal of opposition to high interest rates during the disinflation, members of the FOMC believed that at a fundamental level and for a limited period of time the Fed had political support for continuing its tight policy. This explanation is consistent with the story told in the previous section.

## **5. CONCLUSION**

This paper has presented narrative and econometric evidence that political constraints rather than misguided beliefs about the economy were responsible for the Federal Reserve's overly expansionary policies during the 1970s. These findings have implications for control of inflation in the future. The lesson from the mismeasurement and misunderstandings views is that a repeat of the Great Inflation can be avoided by technocratic measures: better data measurement, a less activist policy rule, better models of the macroeconomy. The political constraints hypothesis, by contrast, suggests that the Great Inflation was due to political pressures arising outside the Federal Reserve and would have occurred even if the Fed had wanted to adopt a thoroughly modern approach to economic stabilization. Maintaining control over inflation in the future requires maintaining public support for low inflation and, failing that, preserving the Fed's institutional independence. In light of the dramatic expansion of the Fed's balance sheet in response to the current economic crisis, a commitment to restraint will be especially important as the Fed unwinds its policies in years to come.

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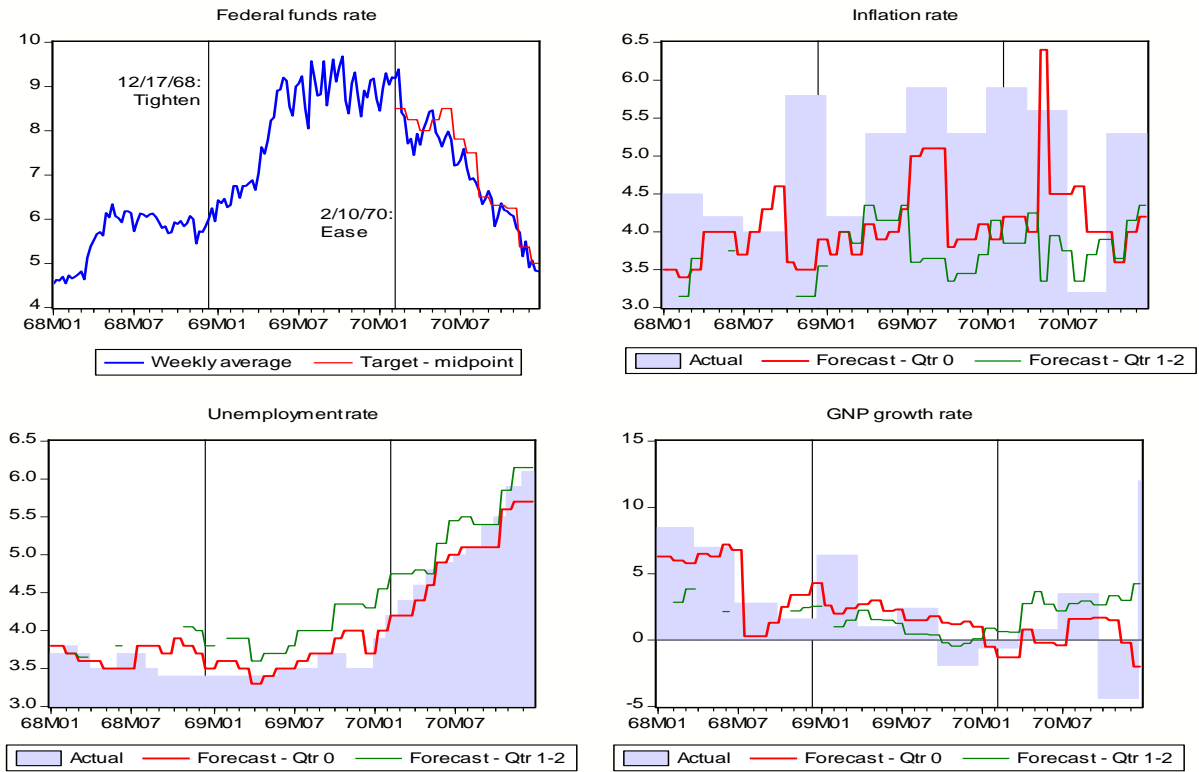
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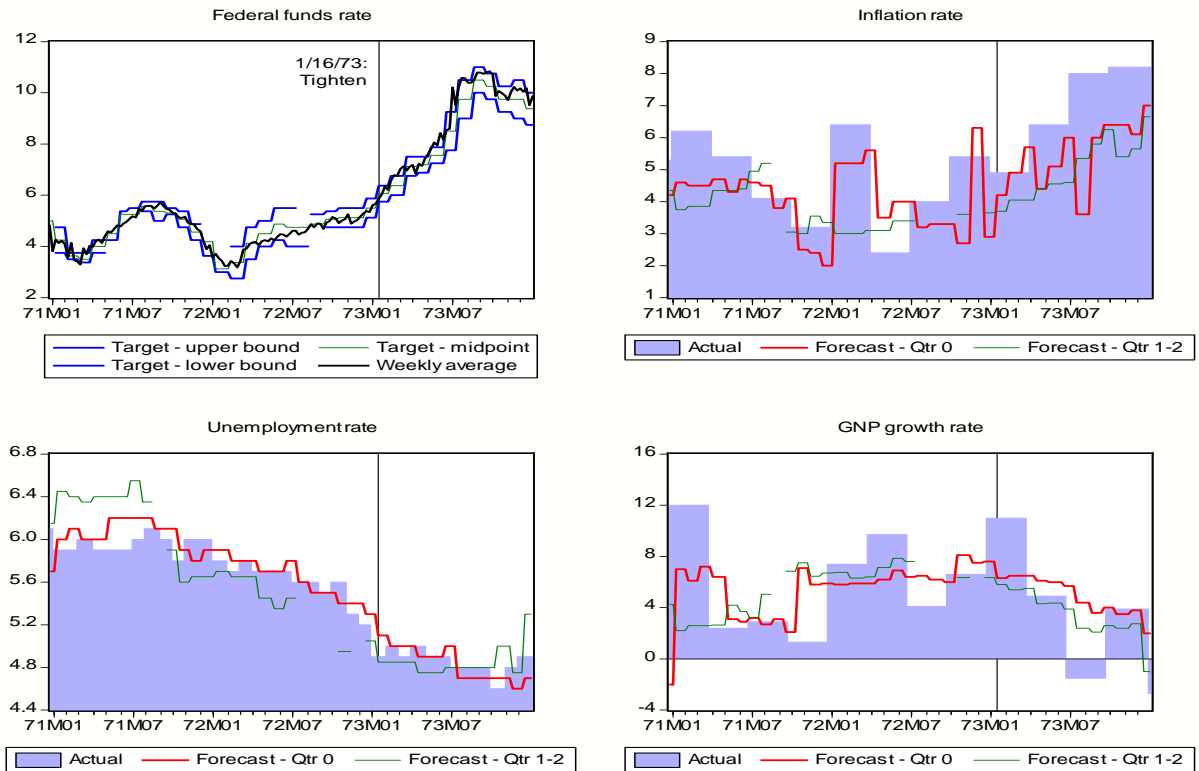
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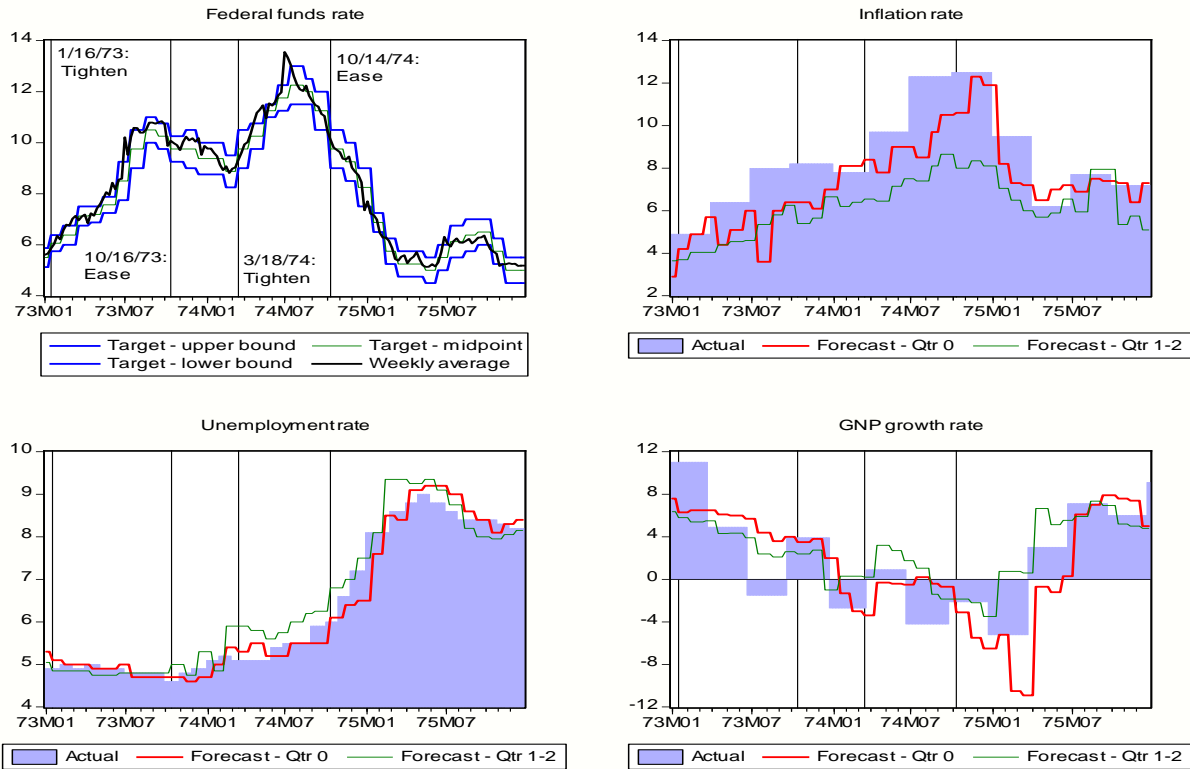
**Figure 1. The 1969-70 disinflation.**



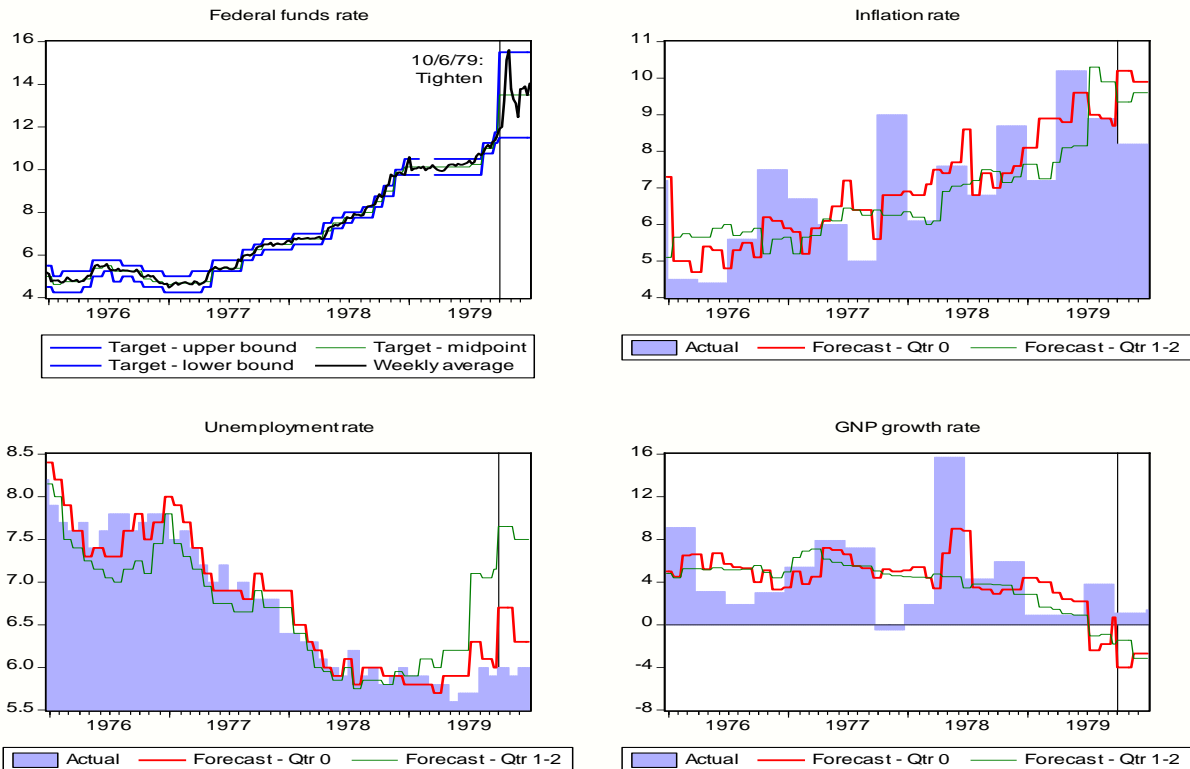
**Figure 2. The 1971-73 expansion.**



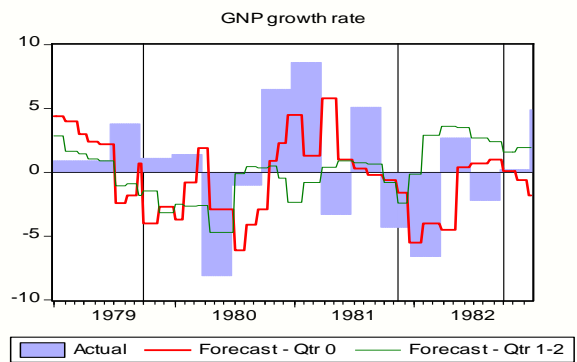
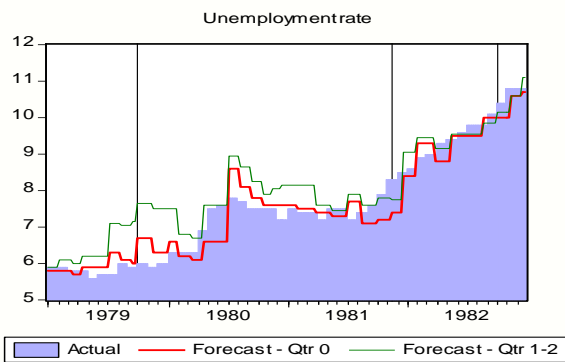
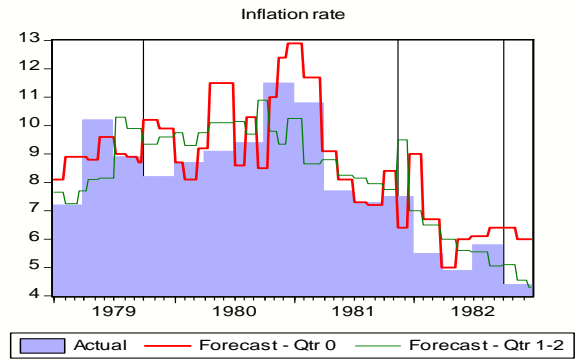
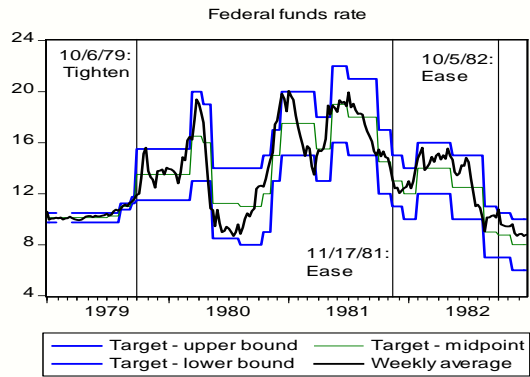
**Figure 3. The 1973-74 disinflations.**



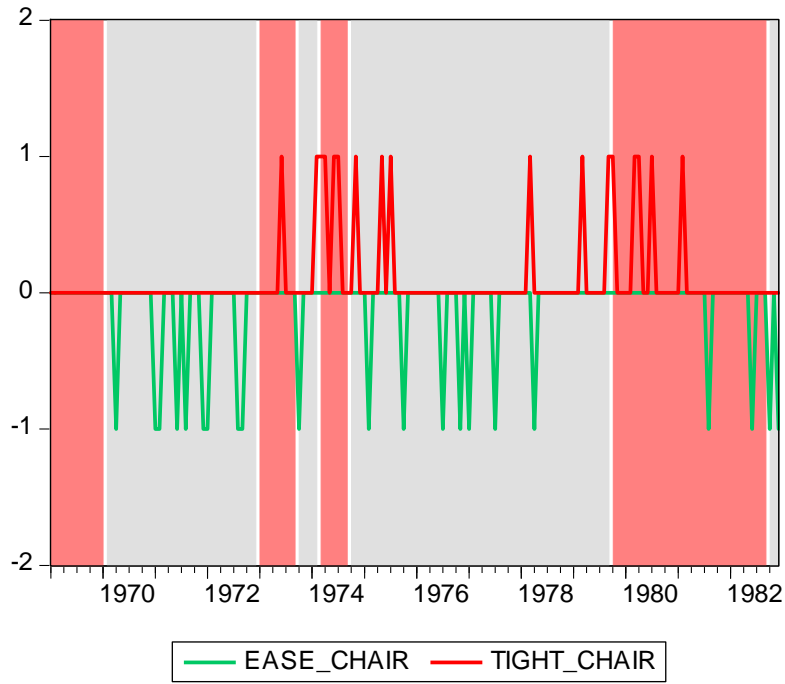
**Figure 4. The 1976-78 expansion.**



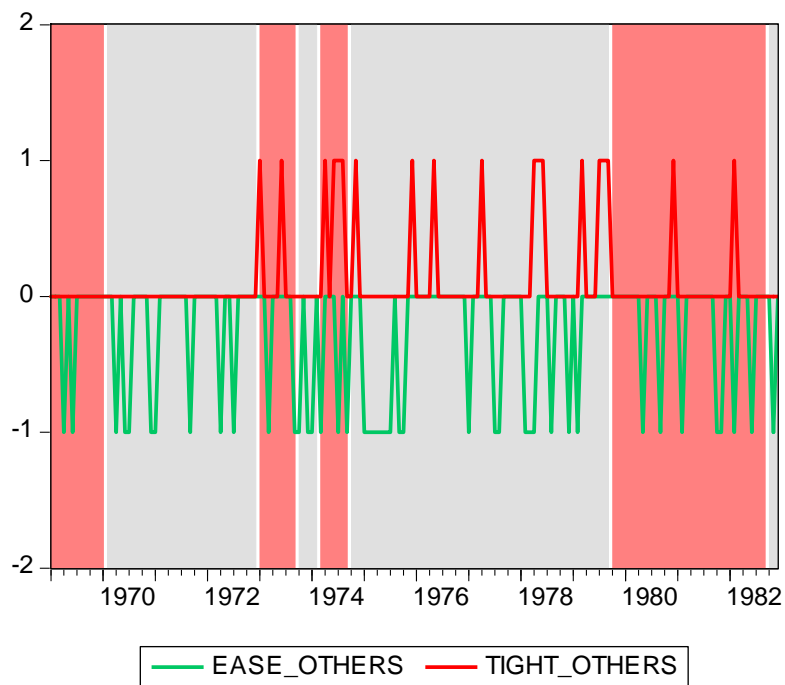
**Figure 5. The 1979-82 disinflation.**



**Figure 6. Statements of political pressure from Chair**



**Figure 7. Statements of political pressure from other committee members**



Shaded areas: red = tightening periods, grey = easing periods

**Table 1A. Contingency table for political statements and policy stance**

	Policy stance		Total
	Loose	Tight	
No statement	84	63	147
Chair (loose)	19	2	21
Total	103	65	168

Pearson  $\chi^2(1)$  8.61 (0.00)  
 Z-statistic -3.51 (0.00)

	Policy stance		Total
	Loose	Tight	
No statement	96	55	151
Chair (tight)	7	10	17
Total	103	65	168

Pearson  $\chi^2(1)$  3.23 (0.07)  
 Z-statistic 1.68 (0.09)

**1B.**

	Policy stance		Total
	Loose	Tight	
No statement	73	51	124
Other (loose)	30	14	44
Total	103	65	168

Pearson  $\chi^2(1)$  1.19 (0.28)  
 Z-statistic -1.12 (0.26)

	Policy stance		Total
	Loose	Tight	
No statement	92	57	149
Other (tight)	11	8	19
Total	103	65	168

Pearson  $\chi^2(1)$  0.11 (0.75)  
 Z-statistic 0.32 (0.75)

**1C.**

	Policy stance		Total
	Loose	Last 3 mos.	
No statement	77	9	86
Chair (loose)	17	0	17
Total	94	9	103

Pearson  $\chi^2(1)$  1.95 (0.16)  
 Z-statistic -4.56 (0.00)

	Policy stance		Total
	Loose	Last 3 mos.	
No statement	89	5	94
Chair (tight)	5	4	9
Total	94	9	103

Pearson  $\chi^2(1)$  15.77 (0.00)  
 Z-statistic 2.34 (0.02)

**1D.**

	Policy stance		Total
	Loose	Last 3 mos.	
No statement	66	7	73
Other (loose)	28	2	30
Total	94	9	103

Pearson  $\chi^2(1)$  0.23 (0.63)  
 Z-statistic -0.52 (0.60)

	Policy stance		Total
	Loose	Last 3 mos.	
No statement	85	6	91
Other (tight)	9	3	12
Total	94	9	103

Pearson  $\chi^2(1)$  4.50 (0.03)  
 Z-statistic 1.48 (0.14)

**1E.**

	Policy stance		Total
	Tight	Last 3 mos.	
No statement	55	10	65
Chair (loose)	2	2	4
Total	57	12	69

Pearson  $\chi^2(1)$  3.14 (0.08)  
 Z-statistic 1.19 (0.23)

	Policy stance		Total
	Tight	Last 3 mos.	
No statement	47	12	59
Chair (tight)	10	0	10
Total	57	12	69

Pearson  $\chi^2(1)$  2.46 (0.12)  
 Z-statistic -3.48 (0.00)

**1F.**

	Policy stance		Total
	Tight	Last 3 mos.	
No statement	45	9	54
Other (loose)	12	3	15
Total	57	12	69

Pearson  $\chi^2(1)$  0.09 (0.76)  
 Z-statistic 0.29 (0.77)

	Policy stance		Total
	Tight	Last 3 mos.	
No statement	50	11	61
Other (tight)	7	1	8
Total	57	12	69

Pearson  $\chi^2(1)$  0.15 (0.70)  
 Z-statistic -0.43 (0.67)

Sample is 1969:01-1982:12. For 1C and 1D, loose periods only. For 1E and 1F, tight periods only.

Pearson  $\chi^2$ : test of independence (p-value in parentheses).

Z-statistic: test of  $H_0$ : frequency of statement|loose period = frequency of statement|tight period (p-value in parentheses).

See Agresti, Alan, Categorical Data Analysis, New York: John Wiley & Sons, 1990, pp. 47-48, 55.

**Table 2. Augmented Taylor rule regressions.**

	Sample:				
	1/13/69- 9/17/79	1/13/69- 9/17/79	1/13/69- 12/15/80	1/13/69- 12/21/81	1/13/69- 12/20/82
$\rho_1$	1.27 (11.24)	1.22 (11.53)	1.18 (6.06)	1.04 (8.73)	1.01 (9.69)
$\rho_2$	-0.41 (4.15)	-0.38 (3.93)	-0.33 (2.29)	-0.17 (1.38)	-0.12 (1.14)
$\alpha$	4.99 (5.62)	5.98 (6.93)	4.10 (2.21)	4.24 (1.77)	4.25 (1.36)
$\beta$	0.66 (3.96)	0.44 (2.46)	0.89 (2.30)	0.99 (2.09)	0.94 (1.54)
$\gamma$	-1.56 (5.15)	-1.44 (5.68)	-1.33 (4.18)	-1.60 (3.45)	-1.53 (2.59)
$\delta_{\text{LOOSE\_CHAIR}}$	--	-0.26 (2.47)	-0.19 (1.65)	-0.10 (0.69)	-0.01 (0.06)
$\delta_{\text{TIGHT\_CHAIR}}$	--	0.24 (2.09)	0.54 (1.62)	0.50 (1.65)	0.41 (1.33)
$\delta_{\text{LOOSE\_OTHERS}}$	--	0.04 (0.47)	-0.27 (1.58)	-0.40 (2.07)	-0.28 (1.46)
$\delta_{\text{TIGHT\_OTHERS}}$	--	0.18 (1.87)	-0.04 (0.26)	-0.03 (0.19)	0.24 (0.91)
Observations	131	131	144	152	160
$R^2$	0.96	0.97	0.95	0.95	0.94
Breusch-Godfrey LM (p-value)	1.19 (0.31)	0.59 (0.55)	1.01 (0.37)	0.33 (0.72)	0.15 (0.86)

Dependent variable is midpoint of federal funds target. 114 observations. Newey-West t-statistics in parentheses.

Breusch-Godfrey LM test is F test of hypothesis of no second-order autocorrelation.