LESSONS FROM HISTORY FOR SUCCESSFUL DISINFLATION

ONLINE APPENDIX A:

DATA

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This appendix describes the sources of all data used in the paper.

Inflation Data. We use the same data sources and procedures as in Romer and Romer (2023). The only difference is that we use updated versions of the modern data series, which are slightly revised and extend through 2023Q4. Much of the description here therefore follows our earlier paper.

The quarterly GDP price index data for 1947Q1 to 2023Q4 are from the BEA, Table 1.1.4, series gross domestic product, seasonally adjusted, index, 2017=100, downloaded February 18, 2024. Because we specify the variable in percentage changes and begin with the value for 1946Q4, we need to construct a proxy for the level of the index for both 1946Q3 and 1946Q4. To do this, we simply take the ratio of the GDP price index to the Consumer Price Index for All Urban Consumers (CPI-U) at a quarterly frequency in 1947Q1, and multiply it by the quarterly CPI-U in 1946Q3 and 1946Q4. The CPI-U data are from the BLS, series CUUR0000SA0, not seasonally adjusted, index, 1982–84=100, downloaded November 20, 2022. We convert the monthly series to quarterly by averaging. The CPI-U for 1946 is only available in seasonally unadjusted form. However, because seasonal movements in the CPI-U are relatively minor, we make no further adjustment to our constructed proxy.

The quarterly data on the personal consumption expenditures (PCE) price index for 1947Q1 to 2023Q4 and the PCE price index excluding food and energy for 1959Q1 to 2023Q4 are from the BEA, Table 2.3.4, series personal consumption expenditures and PCE excluding food and energy, seasonally adjusted, index, 2017=100, downloaded February 18, 2024. To construct a proxy for the PCE price index for 1946Q3 and 1946Q4, we take the ratio of the PCE price index to the CPI U at a quarterly frequency in 1947Q1, and multiply it by the quarterly CPI-U in 1946Q3 and 1946Q4 (which, as described above, is only available seasonally unadjusted). The CPI-U data are from the BLS, series CUUR0000SA0, not seasonally adjusted, index, 1982–84=100, downloaded November 20, 2022. We convert the monthly series to quarterly by averaging. To construct a proxy for the PCE price index excluding food and energy for 1957Q1 to 1958Q4, we take the ratio of the PCE price index excluding food and energy to the CPI-U less food and energy at a quarterly frequency in 1959Q1, and multiply it by the quarterly CPI-U less food and energy. The CPI-U less food and energy data are from the BLS, series CUSR0000SA0L1E, seasonally adjusted, index, 1982–84=100, downloaded November 20, 2022. To construct a proxy for the PCE price index excluding food and energy for 1947Q1 to 1956Q4, we take the ratio of our proxy to the quarterly CPI-U less food in 1957Q1, and multiply it by the CPI-U less food. The CPI-U less food data are from the BLS, series CUSR0000SA0L1, seasonally adjusted, index, 1982–84=100, downloaded November 20, 2022. Finally, to construct a proxy for the PCE price index excluding food and energy for 1946Q3 and 1946Q4, we take the ratio of our proxy to the quarterly CPI-U less food (which is only available seasonally unadjusted for this period) in 1947Q1, and multiply by the CPI-U less food. The CPI-U less food data are from the BLS, series CUUR0000SA0L1, not seasonally adjusted, index, 1982–84=100, downloaded November 20, 2022. We convert the various monthly CPI series to quarterly by averaging.

For all three series, inflation at an annual rate is calculated as the difference in logarithms times 400.

Forecasts. The data for the Livingston Survey are from the Federal Reserve Bank of Philadelphia, Real-Time Data Research Center, "Historical Data: Livingston Survey – Philadelphia Fed" page, https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/livingston-historical-data, "Individual Data" spreadsheet, individualdata.xlsx, "CPI" tab, Columns “CPI_6M” and “CPI_12M,” downloaded June 8, 2024. Inflation at an annual rate is calculated as the difference in logarithms times 200.

The data for the Survey of Professional Forecasters are from the Federal Reserve Bank of Philadelphia, Real-Time Data Research Center, “Individual Forecasts: Survey of Professional Forecasters” page, https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/individual-forecasts, “Surveys 1968:4–present” spreadsheet, SPFmicrodata.xlsx, “PGDP” tab, downloaded April 16, 2024. We use Columns “PGDP5” and “PGDP6” (and so find the forecasts of inflation in the quarter 6 quarters after the date of the survey), except for 1969Q1 (February 1969). For that date, PGDP6 is not available, and so we use Columns “PGDP4” and “PGDP5” (and thus find the forecasts of inflation in the quarter 5 quarters after the date of the survey). Inflation at an annual rate is calculated as the difference in logarithms times 400.

The numbers we report are calculated by computing the forecast of inflation implied by each forecaster’s projected path of the price level, and then finding the median of those forecasts. The medians reported on the Federal Reserve Bank of Philadelphia website, in contrast, are calculated by finding the median forecasts of the price level and then computing the implied inflation rate. The two measures can differ, particularly because of effects from rounding. The largest difference for the dates we consider occurs in the 1969Q1 (February 1969) Survey of Professional Forecasters, when the inflation rate implied by the median forecasts of the price level is exactly zero even though 49 or the 61 respondents forecasted inflation over 3 percent.

Financial Market Data. The monthly effective federal funds rate data for 1954:7 to 2023:12 are from the US Board of Governors of the Federal Reserve System, H.15 Selected Interest Rates, series RIFSPFF_N.M, percent per year, downloaded May 2, 2024. The series we use for the 3-month Treasury bill rate is the 3-Month Treasury Bill Secondary Market Rate, Discount Basis, Percent, Monthly, Not Seasonally Adjusted (series TB3MS), downloaded from Federal Reserve Economic Data (FRED), May 3, 2024.

The series we use for the 2-year nominal Treasury rate is the Market Yield on U.S. Treasury Securities at 2-Year Constant Maturity, Quoted on an Investment Basis, Percent, Daily, Not Seasonally Adjusted (series DGS2), downloaded from FRED, April 6, 2024.

The series for the 5-year breakeven inflation rate is the 5-Year Breakeven Inflation Rate, Percent, Daily, Not Seasonally Adjusted (series T5YIE). The 5-year, 5-year forward inflation expectation rate is the 5-Year, 5-Year Forward Inflation Expectation Rate, Percent, Daily, Not Seasonally Adjusted (series T5YIFR). Both were downloaded from FRED April 25, 2024.

LESSONS FROM HISTORY FOR SUCCESSFUL DISINFLATION

ONLINE APPENDIX B:
NARRATIVE EVIDENCE ON POLICYMAKER COMMITMENT TO DISINFLATION

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This appendix provides a brief discussion of what the narrative record suggests about the level of policymakers' commitment to disinflation in each episode.

October 1947. Because of the unique circumstances of the time, this episode is the most mixed in terms of monetary policymakers' commitment. In two of the dimensions we consider, their commitment was quite strong. First, they had a clear objective for inflation: in the 1940s and 1950s, it was almost a given that any inflation was undesirable, and thus that the goal should be to bring it down to zero. In June 1947, the FOMC's Chief Economist, for example, cited simply "the rise in prices that had taken place" as the key issue. In December 1947, Federal Reserve Chairman Eccles described the goal of policy as "avoid[ing] further price increases" (Eccles testimony, 12/10/1947, p. 5). Second, monetary policymakers were clearly willing to accept substantial output costs to eliminate inflation. In June 1947, the views of the Chief Economist and an Associate Economist were, "although any downturn should be taken care of at the proper time, the important thing at the moment was to stop abnormal pressures on the inflationary side," and, "there would and should be a mild recession" (*Minutes*, 6/5–6/1947, pp. 16 and 17). The FOMC's willingness to risk a recession was stated publicly by the Chairman: "Any anti-inflationary program involves some risk of precipitating a downturn and readjustment in business conditions" (Eccles testimony, 12/10/1947, p. 6).

However, monetary policymakers had significant doubts about whether the tools they had available and were willing to use would be enough to accomplish their goals. The Federal Reserve, which had been pegging the entire term structure, regained the ability to move short-term rates in July 1947, but it continued to peg long-term rates. Moreover, monetary policymakers only wanted to use their influence over short-term rates to a limited extent, and they had no desire to allow the long-term rate to rise. Eccles's view was, "A general rise in interest rates high enough to halt the current inflationary expansion of bank credit would not only entail large added costs to the Government but would have a disastrous effect upon the Government bond market" (Eccles testimony, 12/10/1947, p. 8). The FOMC therefore relied on a mix of tools that in the early postwar period fell under the heading of monetary policy, especially limited increases in short-term rates through open-market operations, increases in the discount rate, increases in reserve requirements, and "jawboning" banks to reduce their lending.

Internally, monetary policymakers' tone was they hoped that would be enough, but in the meantime, they would lobby for additional powers, most notably renewed ability to regulate consumer credit after the expiration of their existing authority on November 1, 1947 and expanded reserve requirements (which they received in limited form in August 1948 and used soon thereafter). In early 1948, for example, Eccles argued that they should "continue for a few months longer the use of all of the means available to the Federal Reserve System to counteract the inflation, … that if results could be obtained through that method rather than by further action by Congress, that would be desirable, but that if the present trends continued he felt the Board should present the situation to Congress in [a] special report" (*Minutes*, 1/20/1948, p. 18). Publicly, however, perhaps because they were making the case for additional powers, they were much more pessimistic. In September 1947, Eccles said, "nothing whatever has been done to put the Board in a position where it could restrain inflationary expansion by the banking system" (Eccles speech, 9/25/1947, p. 9). And in December, he said, "we feel that our existing powers are insufficient" (Eccles testimony, 12/10/1947, p. 4).

A reasonable summary of this mixed record is that the Federal Reserve's commitment in this episode was moderate. But the episode is clearly unique and in many ways cannot be reliably compared with the later ones.

August 1955. Monetary policymakers' overall commitment as they shifted to anti-inflationary policy in 1955 is best described as moderate. The most informative statements in the *Minutes* during this episode about willingness to accept or risk output costs are strong but well short of extreme: "the System could never take action that would be effective without taking some risks" (*Minutes*, 8/2/1955, p. 38); "continuing the present policy of tightness without allowing the tightness to become so severe as to be a cause, or to be cited as a cause, of a down turn in the economy, if such a down turn developed" (*Minutes*, 10/4/1955, p. 6); and "a firmer monetary policy—one firm enough to curtail spending and thus dampen price pressures" (*Minutes*, 11/16/1955, p. 20). The strongest statement in the *Minutes* from Federal Reserve Chairman Martin was, "the action should be decisive and clear" (*Minutes*, 8/23/1955, p. 8).

As in 1947, the Federal Reserve viewed all inflation as harmful, and so its goal was to eliminate it. In August 1955, for example, Martin identified the mere fact of "upward price movements" as one of the "danger signals" that "are now flashing red" (*Minutes*, 8/2/1955, pp. 9 and 13). Indeed, discussions of prices were typically framed in terms of the behavior of the price level, not inflation. In a typical statement, New York Federal Reserve Bank President and FOMC Vice Chairman Sproul said in July 1955, "prices which have been stable, in the aggregate, for two years may be about to get a push on the up-side" (*Minutes*, 7/12/1955, pp. 26–27). In August, Martin discussed what he viewed as the "enormous costs" of "restor[ing] the purchasing power of the dollar" (that is, having deflation to fully offset any inflation) if there were inflation (*Minutes*, 8/2/1955, p. 13). But the statements do not extend beyond that—in contrast to the 1958 and 1981 episodes, which we discuss below, there was no indication of a desire to decisively address inflation.

Importantly, monetary policymakers had some, though not overwhelming, doubts about their willingness to stick with their policy if it did not yield quick payoffs, and about their ability to address inflation on their own. Most notably, they viewed "responsible" behavior by private actors—essentially, civic-minded moderation in demands for price and wage increases—as necessary for the economy to reach "potential" output without inflation.[1] In the speech where he gave the famous "punch bowl" analogy, Martin immediately pivoted to the essential role of private behavior: "The Federal Reserve … is in the position of the chaperone who has ordered the punch bowl removed just when the party was really warming up. But unless the business community, leaders in all walks, exhibit moderation, prudence, and understanding, then we will fail" (Martin speech, 10/19/1955, p. 12).

The FOMC discussed these issues and their implications for policy at some length in March 1956. For example, Sproul said, "the Committee would be fooling itself if it thought that it could prevent this wage-cost spiral short of adopting a very severe monetary policy. Whether the System would have the assent of the Government and of the public in such a course seemed … to be a real question" (*Minutes*, 3/27/1956, p. 33). Another member agreed, saying that "if the System moved to such a degree as would be necessary to stop the wage-cost spiral, it could easily result in the destruction of the System" (p. 33). The discussion concluded with Martin saying the issue was serious but they should proceed: "the Committee could not expect monetary policy to achieve all of the task. However, the threat of a wage-price spiral was so strong today that the System would

[1] One implication is that the meaning of "potential output" or "capacity" in this era differed substantially from modern definitions of "normal output" or the "natural rate of output.".

be derelict in its duty and obligation if it did not do all that it could do" (p. 34). Thus, it appears that monetary policymakers had some qualms about their ability to address inflation and how far they would go, though not enough to stop them from taking serious action.

September 1958. Monetary policymakers' commitment in this episode was very strong. To begin with, their goal was not just to eliminate inflation, but to dispel the idea that a positive inflation rate was normal—in modern language, their objective was to drive long-run expected inflation to zero. They increasingly came to the view that they had been systematically too timid in combating inflation in the years since World War II, with the result that, as one member put it, "There has been continuous, pervasive, and increasingly convincing propaganda to the effect that inflation is inevitable. That propaganda now carries almost universal conviction" (*Minutes*, 7/29/1958, p. 17). In August 1957, Martin said of the prospect of "a gradual rise in prices …, averaging perhaps 2 per cent a year"[2]: "No greater tragedy, short of war, could befall the free world than to have our country surrender to the easy delusion that a little inflation, year after year, is either inevitable or tolerable" (Martin testimony, 8/13/1957, pp. 14 and 26). And in April 1958, he referred to "the disturbing notion that creeping inflation had become … inevitable," and said, "the Federal Reserve rejected [that] idea" (Martin testimony, 4/22/1958, p. 3).

The weak economy and other considerations led the FOMC to hold off on acting strongly on its concern until August and September 1958. At that time, Martin's view was, "the reason that there were now more than five million unemployed was to be found in the extent that inflation dominated the economy in the course of the last few years. … [T]he System had to stand up and be counted in these things" (*Minutes*, 8/19/1958, p. 54), and, "He was not sure that there was not an element of truth in one article which said in effect: 'You have acted with courage, but this is the Federal Reserve System's last chance'" (p. 58).

The committee was clearly willing to accept a recession if that was necessary to accomplish its goals. Martin's strongest statements about this issue bracketed the FOMC's main policy shift: "he would want to assume the risk of being charged with precipitating a downturn rather than to take any action except one that was believed to be correct" (*Minutes*, 7/30/1957, p. 38); and, "if a move were made on the discount rate and the business situation were to collapse, the System would be blamed, but that was the risk that must be run" (*Minutes*, 3/3/1959, p. 58).

As in 1955, monetary policymakers were unsure of their ability to combat inflation on their own. Martin continued to stress the importance of appropriate behavior by fiscal policymakers and private actors (for example, *Minutes*, 8/19/1958, pp. 54 and 59; and Martin speech, 2/6/1959, p. 21), and he said, "whether inflation could be contained, he did not know" (*Minutes*, 1/6/1959, p. 34). But there were two important differences from the 1955 episode. First, the FOMC believed it could address inflation caused by civically-irresponsible "cost-push" inflation. In his August 1957 testimony, Martin argued that the distinction between "demand-pulls" and "cost-push" was "an oversimplification," and that in any inflation, "demand must always be sufficient to keep the spiral moving" (Martin testimony, 8/13/1957, p. 9). He went on to say, "whatever the special features of the current inflation, the important fact is that it is here" (p. 12); and he concluded, "How, then, may further inflation be restrained? Bluntly, the answer is to be found in a moderation of spending" (p. 24). Second, the FOMC was willing to pursue tight policy despite the challenges involved. At the time of the policy shift, his view was, "If the System should lose its independence in the process of fighting for sound money, that would indeed be a great feather in

[2] That is, the modern Federal Reserve's most preferred inflation outcome.

its cap and ultimately its success would be great" (*Minutes*, 9/9/1958, p. 53). A good summary of the view that the Federal Reserve did not have full control over the outcomes but nonetheless should act strongly came from Hayes in May 1959: "I am convinced that the time has come for a decisive signal of the Federal Reserve System's determination to do its part to check inflationary trends" (*Minutes*, 5/26/1959, p. 17).

Thus, this episode ranks high in meeting our criteria for strong commitment. There was a willingness to accept large output costs; a significant (though not unlimited) "whatever it takes" attitude and belief they could prevail over obstacles; a clear and ambitious goal regarding inflation; and a view that this this not just a second try, but close to a last one.

December 1968. In this episode, monetary policymakers demonstrated only a weak-to-moderate commitment to disinflation. In all episodes we identify as disinflationary shocks, monetary policymakers were willing to accept the risk of an output loss. But in 1968, they sought to be very measured and gradual in their moves, so that the risk of significant loss was small. For example, at the FOMC meeting in December 1968, Federal Reserve Bank of New York President and Vice Chairman of the FOMC Alfred Hayes (who was running the meeting in Chairman William McChesney Martin's absence) said: "There is no doubt in my mind that the major objective of monetary policy under these circumstances should be to seek an appreciably slower rate of bank credit expansion as a contribution to the long-sought slowing of the economy. However, I would advocate gradual and persistent pressure in preference to any massive moves" (*Minutes*, 12/17/1968, p. 49). Federal Reserve Bank of Kansas City George Clay expressed a similar view, saying: "As a part of that program, the strong inflationary expectations had to be dispelled. That could not be accomplished without slowing down the rate of economic expansion. Every reasonable effort needed to be made to avoid a downturn in economic activity, but it had to be admitted that such a risk existed" (*Minutes*, 12/17/1968, p. 72). In testimony in early 1969, Martin echoed this desire for very measured actions. He said: "The progress envisioned would necessarily be gradual, for an effort to 'disinflate' abruptly, after so extended a period of cumulating inflationary pressures, would risk wrenching the economy sharply, with major dislocations in employment and in the structure of production" (Martin testimony, 2/26/1969, p. 11). We do not observe in policymakers at this time anything that could be called a "whatever it takes" attitude.[3]

Martin, even more so than in the 1950s, expressed the belief that monetary policy could not deal with inflation on its own. In remarks to the American Society of Newspaper Editors in the spring of 1968, he voiced great concern about fiscal policy rowing in the opposite direction of monetary policy. He said: "I see no way that monetary policy, unless you want to bring the economy to a complete, grinding halt which nobody wants to do, I see no way how monetary policy can change a more than $20 billion deficit that is getting progressively worse" (Martin remarks, 4/19/196, p. 6). He also echoed his previous comments that the Federal Reserve needed the cooperation of the private sector to reduce inflation. In a speech in June 1969, he said: "If bankers and businessmen recognize that their own interests coincide with the public interest in calling for restraint and if their lending and spending decisions work in harmony with fiscal and monetary policies aimed at cooling the boom[,] we can check the drift toward higher prices and higher

[3] One concrete sign that policymakers were very cautious in their actions in this period is that they took pains to reassure financial markets that they would not repeat the credit crunch of 1966. At the FOMC meeting in March 1969, policymakers worried that they had undercut themselves. In response, Governor Dewey Daane said that "he did not think the System's current policy had been vitiated by assurances that a crunch would be avoided, and he favored continuing that policy" (*Minutes*, 3/4/1969, p. 89).

interest rates" (Martin speech, 6/30/1969, p. 10).

Policy makers in the 1968 episode were also relatively vague about their goal for inflation. Martin, in testimony in February 1969 said: "I am optimistic, however, that the forces of fiscal and monetary restraint set in motion last year will gradually bring us back to reasonable price stability" (Martin testimony, 2/26/1969, p. 1). In March he said: "We must follow economic stabilization policies that bring inflation under control" (Martin testimony, 3/25/1969, p. 9). While one can guess that Martin favored very low inflation, the discussion within the FOMC does not indicate a clear goal or timeline for inflation reduction.

Taken together, the emphasis on avoiding significant output losses, the belief that monetary policy needed to be supplemented with other policies, and the fact that policymakers were vague about their goals for inflation, suggest that monetary policymakers were only weakly (perhaps edging toward moderately) committed to disinflation in the 1968 episode.

April 1974. Monetary policymakers' commitment to disinflation in 1974 was relatively weak. A key indicator of this was the fact that policymakers again put strict limits on how much output loss they were willing to tolerate to bring inflation down. For example, at the FOMC meeting in March 1974, Governor Henry Wallich said: "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" (*Minutes*, 3/18–19/1974, pp. 134–135). At the same meeting, Chairman Arthur Burns summed up the sentiment of the committee saying: "No one had proposed that the economy should be put through the wringer" (p. 151). At the FOMC meeting in April 1974, which is when we date the switch to disinflationary policy, Governor George Mitchell said: "The System had now demonstrated by the recent changes in monetary policy that it was on the side of the angels, but it could overdo it" (*Minutes*, 4/15–16/1974, p. 89). At the May FOMC meeting, Robert Mayo, President of the Federal Reserve Bank of Chicago, sounded similarly cautious: "He believed in attempting to control inflation as much as anyone, but the Committee was dealing with questions of confidence in the banking system and with a fragile financial structure" (*Minutes*, 5/21/1974, p. 54). Finally, at the June 1974 FOMC meeting, Governors Brimmer and Wallich (who were typically on different ends of the hawk-dove spectrum) expressed almost identical views about the output loss they were willing to accept: "Mr. Brimmer said … he would want to aim for a longer-term growth rate in real GNP that was below the trend rate but above zero," and Wallich said "It might well turn out that an inflation of the present type could not be ended without a recession, but the System certainly had to try; accordingly, he would favor aiming for a growth rate in real GNP of 2 or 3 per cent" (*Minutes*, 6/18/1974, pp. 59 and 68).[4]

In his testimony and speeches, Chairman Burns was certainly passionate about his hatred of inflation. For example, in a commencement address in May 1974, he said: "The gravity of our current inflationary problem can hardly be overestimated," and "I do not believe I exaggerate in saying that the ultimate consequence of inflation could well be a significant decline of economic

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[4] The most aggressive comment we saw in the record was from Bruce MacLaury, President of the Federal Reserve Bank of Minneapolis. He said: "In general, he believed the Committee was being forced by circumstances to choose between recession on the one hand and a totally unacceptable rate of inflation, which could lead to collapse, on the other hand. Given such a choice, he was prepared to maintain prevailing money market conditions, even though he recognized that such a course probably would make a recession—on his definition, at least—likely and perhaps unavoidable" (*Minutes*, 6/18/1974, p. 64). However, he was clearly the exception.

and political freedom for the American people. (Burns speech, 5/26/1974, pp. 1 and 7). However, he too seemed to put limits on how much output loss he was willing to accept. For example, in the same address he said: "We intend to encourage sufficient growth in supplies of money and credit to finance orderly economic expansion" (p. 9). In Congressional testimony in July 1974, he suggested that "moderation in the growth rate of money and credit supplies must be achieved gradually to avoid upsetting effects on the real economy" (Burns testimony, 7/30/1974, pp. 6–7). In testimony in August 1974, Burns was more aggressive, saying: "A period of slow growth is needed to permit an unwinding of the inflationary processes that have been built into our economy through years of neglect," and "There are, of course, risks that a period of slow economic expansion will lead to a gradual weakening of demand for goods and services, to a deterioration in the economic outlook, and to cumulative recessionary tendencies" (Burns testimony, 8/6/1974, p. 16). However, even then he certainly did not exhibit a "whatever it takes" attitude.

Another indication that policymakers were only weakly committed to disinflation in this episode is the fact that they felt inflation was unlikely to be cured by monetary policy alone. In the commencement address discussed above, Burns gave a long list of other changes needed to bring inflation down. He said: "But I cannot emphasize too strongly that monetary policy alone cannot solve our stubborn inflationary problem. We must work simultaneously at lessening the powerful underlying bias toward inflation that stems from excessive total demands on our limited resources. This means, among other things, that the Federal budget has to be handled more responsibly than it has been in the past" (Burns speech, 5/26/1974, pp. 9—10). He even told graduates that there was a "need for rediscovery of the art of careful budgeting of family expenditures. In some of our businesses, price competition has atrophied as a mode of economic behavior, in part because many of our families no longer exercise much discipline in their spending" (pp. 11–12). The importance of fiscal restraint is a theme Burns returned to often. For example, in testimony in July 1974 he said: "If the present inflationary problem is to be solved, and interest rates brought down to reasonable levels, the Federal budget must be brought into better balance. This is the most important single step that could be taken to restore the confidence of people in their own and our nation's economic future" (Burns testimony, 7/30/1974, p. 9).[5] Burns's view that monetary policy was only one of a number of policies needed to deal with inflation was echoed by Governor Brimmer at the FOMC meeting in April 1974: "He wanted the Committee to take responsibility for its part of the job, and he would encourage other agencies of the Government to take responsibility for their parts" (*Minutes*, 4/15–16/1974, p. 86).

A final indicator of weak commitment in this episode is that policymakers were somewhat vague about their inflation goals. Most spoke simply of "bringing inflation under control" or of a desire to "slow the longer-run rate of inflation" (*Minutes*, 3/18–19/1974, p. 116, and *Minutes*, 4/15–16/1974, p. 94). In testimony in April 1974, Burns was somewhat more precise, saying: "The pace of inflation needs to be substantially reduced, even if it cannot be halted, this year" (Burns testimony, 4/4/1974, p. 22) He also said on a number of occasions "A concerted national effort to end inflation requires explicit recognition of general price stability as a primary objective of public policy. This might best be done promptly through a concurrent resolution by the Congress, to be

[5] He did, however, allow that monetary policy could have prevented inflation, but to do so would have been very costly: "From a purely theoretical point of view, it would have been possible for monetary policy to offset the influence that lax fiscal policies and the special factors have exerted on the general level of prices. … But an effort to use harsh policies of monetary restraint to offset the exceptionally powerful inflationary forces of recent years would have caused serious financial disorder and economic dislocation. That would not have been a sensible course for monetary policy" (Burns testimony, 7/30/1974, p. 17).

followed later by an appropriate amendment to the Employment Act of 1946" (Burns testimony, 8/6/1974, p. 20). However, he did not ever give his definition of what "general price stability" was.

August 1978. Though monetary policymakers met our criteria for a contractionary monetary policy shock in August 1978, we view their commitment to disinflation in this episode as weak. Most important to this classification is the fact that policymakers put strict limits on how much output loss they were willing to risk to bring disinflation about. Federal Reserve Chairman G. William Miller said at the September 1978 FOMC meeting (*Transcript*, 9/19/1978, p. 18, bracketed material in the original):

> I would be very cautious to restrain the system more in the face of the pessimistic comments we already have and [precipitate] a recession just to make us all feel that we have done something more. I don't think that would contribute enough to solving the problem. You know, we are already down to growing at or below the trend line. Really, is there more that we can do short term?[6]

Similarly, Federal Reserve Bank of St. Louis President Lawrence Roos, said: "It seems to me that there is at least a majority consensus within this group that inflation is a problem and that it would be desirable, if possible, to attempt to slow growth in the aggregates without causing a recession. I think even the most maverick of us would be resistant to anything that would lead to recession" (*Transcript*, 9/19/1978, p. 31). Federal Reserve Bank of Cleveland President Willis Winn said: "As anxious as I am to get [the aggregates] down, I want to get them down slowly precisely so we don't precipitate the recession that I think we can avoid if we are careful" (*Transcript*, 12/19/1978, p. 15). That policymakers were only willing to bring output growth to slightly below trend and were highly averse to a full-blown recession suggests that they were about as far from having a "whatever-it-takes" attitude as they could have and still be classified as effecting a contractionary monetary policy shock.

A second indication that that policymakers' commitment to disinflation was weak is that they were very vague about what inflation rate they were aiming for, and they were clearly not in a hurry to get inflation down. At the October 1978 FOMC meeting, Miller emphasized that: "What we need is a steadiness of purpose. Inflation built up over twelve years; we are going to have to wring it out over five to seven years" (*Transcript*, 10/17/1978, p. 23). In a speech soon after, he said: "It will take considerable time to eradicate this virulent disease. We must be willing to commit ourselves to an anti-inflation fight of five to seven years if we are to succeed in returning to price stability on a permanent basis" (Miller speech, 10/20/1978, p. 7). The reference to "price stability" could suggest they were aiming at zero inflation, but we see no evidence in the *Minutes* that this was the actual goal. This, combined with the long horizon over which Miller saw inflation falling, suggests a very loose goal at best.

A third indication of a low commitment to disinflation is Miller's view that monetary policy could not lower inflation on its own without extreme costs. This view was expressed in a number of speeches in the fall of 1978. For example, in late October, he said: "Monetary policy cannot do the job alone. If we were left as the only restraining influence during a period of stimulative fiscal policies then the degree of monetary restraint would have to be so severe as to bring the economy

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[6] Miller sounded even more risk averse in Congressional testimony in November 1978. He said: "If inflation is to be gradually slowed, ... real GNP at this juncture probably should not grow at an annualized rate much above 3 per cent, in line with the prospective growth of potential output. Nor, of course, do we want to see a protracted shortfall from that pace that would bring on recession and underutilization of labor and productive capacity" (Miller testimony, 11/16/1978, pp. 3–4).

to its knees" (Miller speech, 10/25/1978, p. 4; see also Miller speech, 10/20/1978, p. 5). Perhaps more telling was the long list of other policies that Miller felt were needed to reduce inflation. In a speech in December 1978, he said: "Let me outline some of the components of this arsenal [to fight inflation]: first, fiscal policy; second, incomes policy; third, reduction in regulatory burden; fourth, revitalization of productivity; fifth, a balance in our international accounts; and sixth, a monetary policy which complements and supports the other elements" (Miller speech, 12/12/1978, p. 3). Though putting monetary policy sixth on the list may have been merely a rhetorical flourish, when combined with the other signs of low commitment, it can't help but feel like an omen.

October 1979. Monetary policymakers' commitment to disinflation was very strong in this episode. At the start of the emergency FOMC meeting he call on October 6, 1979, Federal Reserve Chairman Paul Volcker said: "At this stage you've got to place your bets one way or the other and move. I certainly conclude from all of this that we can't walk away today without a program that is strong in fact and perceived as strong in terms of dealing with the situation" (*Transcript*, 10/6/1979, p. 5). Member after member of the FOMC said they were willing to accept significant output losses to bring inflation down. For example, Philip Coldwell, President of the Federal Reserve Bank of Dallas, said: "The risks are large, of course, and [primarily] on the side that whatever recessionary tendencies are already there might be compounded, creating a [greater] decline" (p. 12, parentheticals in the original). Frank Morris, President of the Federal Reserve Bank of Boston, said: "Despite my view that the recession is going to be sharp, I think we are in a situation where we have to be willing to do something dramatic today" (p. 14). And Governor Henry Wallich said: "I think we need stronger action because of the resurgence in inflation and the behavior of the aggregates and the dollar. I realize that this may involve a higher cost in terms of the length and depth of a recession" (p. 19. These statements do not quite rise to the level of "whatever it takes," but they are close. The vote to move to a new operating procedure that would allow much larger rises in the federal funds rate was unanimous.

One unusual feature of this episode is that monetary policymakers often expressed their commitment to disinflation and the new policy framework directly. For example, on a conference call in early March 1980, Roger Guffey, President of the Federal Reserve Bank of Kansas City, said: "I happen to believe that we've come a long way so far and I think now is not the time to hesitate or lose our courage" (*Transcript*, 3/7/1980, p. 7). Volcker, at the March 1980 FOMC meeting said: "If we have another false start, we'll be in considerable trouble even though that clearly runs the risk of overkill. ... The worst thing we could do is to indicate some backing off at this point when we have an announced anti-inflation program" (*Transcript*, 3/18/1980, p. 36). Volcker also expressed strong commitment to the policy in his public remarks. For example, in a speech to the National Press Club in January 1980, he said: "I am acutely conscious that the question I receive most frequently is not why did you do it, but rather, "Will the Fed stick with it?" My own short and simple answer to that question is yes. I do not intend to qualify that answer" (Volcker speech, 1/2/1980, p. 4). In his Humphrey-Hawkins testimony in February 1980, he said: "In the past, at critical junctures for economic stabilization policy, we have usually been more preoccupied with the possibility of near-term weakness in economic activity or other objectives than with the implications of our actions for future inflation. ... As a consequence, fiscal and monetary policies alike too often have been prematurely or excessively stimulative, or insufficiently restrictive" (Volcker testimony, 2/19/1980, pp. 2–3). He emphasized that: "The broad objective of policy must be to break that ominous pattern. That is why dealing with inflation has properly been elevated to a position of high national priority. Success will require that policy be consistently and persistently oriented to that end. Vacillation and procrastination, out of fears of recession or otherwise, would run grave risks" (p. 3).

Two characteristics of the policy discussion, however, make us feel that commitment to disinflation did not rise to the very highest level. One is that, like Miller, Volcker continued to give a laundry list of the other policies that were needed to aid the reduction of inflation. For example, in testimony to the Joint Economic Committee in mid-October 1979, he said: "we should not rely on monetary policy alone, critical as disciplined monetary policy is, to solve our economic problems. We also need a sustained, disciplined fiscal policy; we need an effective energy policy, ... ; we need regulatory and tax policies that will help stimulate investment, cut costs, and increase productivity; and we need international cooperation and understanding" (Volcker testimony, 10/17/1970, p. 7).[7] One sign that Volcker saw a more central role for monetary policy than Miller did is that he did acknowledge that: "In theory, monetary policy could do the job alone," but "in practice, complementary policies are needed to smooth the path and build the base for sustained growth" (Volcker testimony, 2/1/1980, p. 10).

The other characteristic that signaled less-than-wholehearted commitment was that policymakers' goal for inflation was quite nebulous in this episode. In a speech to the American Bankers Association, Volcker said: "What we can do, and I see no reasonable alternative, is to start the process—to turn the corner—to demonstrate the conviction that we have the wisdom and fortitude to maintain the financial discipline required to cope with inflation" (Volcker speech, 10/9/1979, p. 10). Likewise, in testimony in February 1980, he said: "Our purpose in this program was to signal clearly and forcibly our unwillingness to finance an accelerating rate of inflation and our desire to "wind down" inflationary pressures" (Volcker testimony, 2/1/1980, p. 7). Both of these comments suggest at most a desire to change the trajectory of inflation, not a firm or timely goal. Despite this and the previous caveat, however, there can be little doubt that policymakers were strongly committed to disinflation in this episode.

May 1981. After allowing interest rates to fall substantially in the summer and early fall of 1980, monetary policymakers agreed to take a second serious run at disinflation. This second contractionary shock emerged somewhat gradually. But once it was agreed upon, policymakers' commitment was very high.

A common theme of the policy discussion was that policymakers did not want to repeat the error they felt they had made in loosening substantially in the late spring of 1980. For example, in December 1980, Governor Henry Wallich said: "I think we should make every effort to avoid a replay of 1980, with a sharp drop in interest rates which misleads everybody as to what our policy is, and then probably a replay of what happened this fall" (*Transcript*, 12/18–19/1980, p. 43). Likewise, in July 1981, Chairman Volcker said (*Transcript*, 7/6 –7/1981, p. 36):

> I haven't much doubt in my mind that it's appropriate in substance to take the risk of more softness in the economy in the short run than one might ideally like in order to capitalize on the anti-inflationary momentum to the extent it exists. That is much more likely to give a more satisfactory economic as well as inflationary outlook over a period of time as compared to the opposite scenario of heading off economic sluggishness or even a downturn at the expense of rapidly getting back into the kind of situation we were in last fall where we had some retreat on inflationary psychology and the latent demands in the economy immediately reasserted themselves.

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[7] Indeed, the similarity to Miller's remarks makes one wonder if they merely had the same speech writer.

Roger Guffey, President of the Federal Reserve Bank of Kansas City, echoed the same sentiment, saying (p. 55):

> 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.

As in 1958, we believe that policymakers' expressions of remorse about not sticking with the previous policy and deciding to try again conveys tremendous commitment.

Another sign of strong commitment comes from the clear willingness of policymakers to accept substantial output losses to get inflation down. Federal Reserve Bank of St. Louis President Lawrence Roos said in December 1980: "Are we willing to tolerate—and in fact contribute to—a certain amount of further economic distress in the months and the year ahead if that is necessary to break the back of inflation? And I would say yes" (*Transcript*, 12/18–19/1980, p. 36). At the same meeting, Chairman Paul Volcker said: "We have been put in a position or have taken the position—wisely or not, but I think probably wisely given the economic conditions—that we are going to do something about inflation maybe not regardless of the state of economic activity but certainly more than we did before in looking at it in the form of avoiding excess demand" (p. 61). At the FOMC meeting in May 1981, which is when we date the second Volcker-era shock, Governor Lyle Gramley said: "This is a Committee that follows a tough policy. It's only a question of how far we go" (*Transcript*, 5/18/81, p. 32). In July 1981, Governor Wallich said: "If we get out of this inflation, … I think it will be because costs are coming down. And costs will come down in the [usual] painful and unpleasant way—falling profits, rising excess capacity and, unhappily, higher unemployment" (*Transcript*, 7/6–7/1981, p. 31). Likewise, FOMC Vice Chairman Anthony Solomon said: "I think it's more likely that after a protracted period of these high real interest rate levels we will see a significant recession both here and abroad" (p. 22). These comments are about as close to a "whatever it takes" sentiment toward the acceptable costs of disinflation as we see in the historical *Minutes* and *Transcripts*.

Though Volcker continued to mention a wide range of other policies that he felt would be useful in lowering the costs of disinflation, his public statements in this episode ultimately put the burden of disinflation squarely on monetary policy. In November 1980, before the clear renewal of contractionary policy, Volcker said (Volcker testimony, 11/19/80, p. 10):

> What we must do is convey a general sense—and make good on that message—that excessive money and credit creation will not underwrite the inflationary process. Taken alone, as I have suggested, that commitment implies an extraordinarily heavy burden on monetary policy. So equally, we need the perception and the reality that essential monetary restraint will be combined with persistent and effective policies in other directions so that monetary restraint can be tolerable and sustainable.

By March 1981, he had evolved toward the view that: "The Federal Reserve has an indispensable role to play in dealing with inflation. To be effective, we must demonstrate that our own commitment is strong, visible, and sustained. That is our intention" (Volcker testimony, 3/27/1981, p. 10). And in his Humphrey-Hawkins testimony in July 1981, he said: "These considerations help point to the wide range of policies necessary to support a sustained and effective effort against inflation. … But there can be no escaping the fact that monetary policy has a particularly crucial role to play and, in current circumstances, has a particularly heavy burden" (Volcker testimony, 7/21/1981, p. 3).

The one aspect of this episode that doesn't clearly scream commitment is the lack of a clear goal for inflation. Indeed, one striking feature of the policy discussion in 1981 is the degree to which inflation was barely mentioned. It is possible that the goal was so obvious to people in the room that they didn't feel the need to express it. Perhaps the closest statement of a goal came in a Volcker comment at the July FOMC meeting. He said: I think we have clearly taken the froth out of inflation. … I think we've been exceptionally lucky on oil … and we've been pretty lucky on food. The trick is to convert that luck, to the extent that it is luck—it's partly tight money—into a more lasting wage and cost pattern. (*Transcript*, 7/6 –7/1981, p. 32). But this is clearly just a statement about the direction he wants inflation to go, not a clear goal.

Even admitting this one aspect of weakness, we feel comfortable scoring this episode at our highest level of commitment. The willingness to inflict significant output losses to get inflation down, combined with the inherent forcefulness of monetary policymakers undertaking a second monetary contraction because they felt they had erred in ending the previous one too soon, are sufficient evidence of very high commitment.

December 1988. The narrative record indicates that monetary policymakers were only moderately committed to disinflation during this episode. The most important reason for this classification is that policymakers put definite limits on how much output they were willing to sacrifice to bring inflation down. For example, at the December 1988 FOMC meeting, Federal Reserve Bank of Philadelphia President Edward Boehne said: "So, while we clearly need to rein the economy in, about the last thing we need is a recession …. So, I come down on the side of reining in but doing it with some caution" (*Transcript*, 12/13–14/1988, p. 40). Likewise, Governor Edward Kelley said: "Over the foreseeable horizon in the next year or two, I think it's in nobody's interest to allow—that's too strong a word—nobody's interest to have a recession occur …. I would simply like to say that it's my hope that as we do go forward here, we'd be very careful as to how aggressive we get. We don't want to wind up with a Pyrrhic victory" (p. 47). Chairman Greenspan clearly endorsed this view that disinflationary policy should not be allowed to cause significant output losses, saying: "One starts off with the quite credible concerns of Governors Kelley and LaWare about the dangers of a recession. I think that we must make certain that we focus policy in a manner which reduces the probability that we will be confronted with that" (p. 52). We do not see in these comments anything that could be characterized as a "whatever it takes" attitude in this episode.[8]

[8] There was obviously a range of opinion on the FOMC, with some members being more willing to risk a more severe slowdown. For example, W. Lee Hoskins, President of the Federal Reserve Bank of Cleveland, said: "I think the costs of allowing inflation to become embedded in the economy are very high, and I would skew policy and take the risk on the side of being overly tight" (*Transcript*, 12/13–14/1988, p. 44). While this view did not carry the day, a profile of Greenspan by Louis Uchitelle (1989) suggests that a desire to find consensus pushed the Federal Reserve Chair to accept more restrictive policy than he otherwise might have. Greenspan's comments at the February 1989 FOMC meeting add credence to this characterization. He said: "I think it is very important for the credibility of this Committee to try to find some consensus as best we can, because even though there's a large bimodal distribution out there I think we're not that far apart. And I think it would be very useful if we could find a means to accommodate each other in such a way that we can have a policy that we all can essentially go along with, though we all may not feel fully comfortable with it" (*Transcript*, 2/7–8/1989, p. 49).

In his public remarks, Greenspan reiterated his desire to limit the output consequences of the disinflationary policy. In testimony in February 1989, for example, he said: "The Federal Reserve expects its policy in 1989 to support continued economic expansion, even while putting in place conditions for a gradual easing in the rate of inflation over time" (Greenspan testimony, 2/28/1989, p. 4). Likewise, in March, he testified: "It is just such an acceleration [of inflation] that could feed the kind of imbalances that ultimately bring expansions to an end. The Federal Reserve's earlier money market tightening and the discount rate action last week were taken to forestall such imbalances in order to keep the economy on a more sustainable path toward price stability" (Greenspan testimony, 3/2/1989, p. 4)

Like Volcker in 1981, Greenspan invoked the need for other policies to reduce inflation, but he clearly placed the primary burden on monetary policy. For example, in February 1989, he said: "Price stability … requires that aggregate demand be in line with potential aggregate supply. Inflation in the longer-term is essentially a monetary phenomenon. But large budget deficits contribute to the problem …. Thus, in the present circumstances, fiscal policy can help to smooth our progress over the next few years toward better price performance" (Greenspan testimony, 2/28/1989, pp. 5–6).

One way that policymakers in the 1988 episode showed quite strong commitment was in setting a firm goal for inflation. Greenspan, in testimony in January and February 1989, defined price stability as: "establishing an environment where expected changes in the average price level are small enough and gradual enough that they do not materially enter business and household financial decisions" (Greenspan testimony, 2/28/1989, p. 5). This definition was cited by Donald Kohn, Secretary and Economist, at the February FOMC meeting. He said: "the Chairman in particular in recent testimonies—put out a very strong statement about our objective and backed it with reasons why price stability is our objective, without necessarily saying [we plan to achieve that] by the year 1993 or something like that" (*Transcript*, 2/7–8/1989, p. 31). In a back-and-forth with President Hoskins at the March FOMC meeting, Greenspan affirmed price stability as the policy goal. Hoskins said: "many of us have spoken out about price stability. … If that's not our objective then I think we probably ought to talk about it." Greenspan replied: "No, I think it is our objective" (*Transcript*, 3/28/1989, pp. 39—40).

Overall, the clear limits set on the output consequences lead us to not score policymakers' commitment to disinflation in this episode as particularly high. But the firm (albeit clearly quite long-run) goal for inflation and the central role assigned to monetary policy suggest that commitment was at least moderate.

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LESSONS FROM HISTORY FOR SUCCESSFUL DISINFLATION

ONLINE APPENDIX C:
NEWS REPORTS ON COMMITMENT IN DISINFLATIONARY EPISODES

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As described in Section IV of the paper, this appendix presents episode-by-episode summaries of the information that readers of the *New York Times* would have had about the Federal Reserve's commitment to reducing inflation when it embarked on attempts at disinflation in the postwar period.

To find the relevant information in the *New York Times*, we search over an extended period encompassing the policy shift for articles containing "Federal," "Reserve," and the last name of the Federal Reserve Chair, and then examine each article. For subperiods when it appeared the search might have missed important items (such as extended stretches with few articles, or periods for which later articles alluded to potentially relevant developments that were not captured up by our initial search), we also search for articles containing "Federal Reserve" and either "inflation" or "inflationary." Finally, for the period August 10, 1978—November 5, 1978, the *New York Times* is missing from all the websites we examined (including the newspaper's online archive). For these dates, we therefore search the *Wall Street Journal* instead.

In reading the news articles, we examine the same indicators of commitment we investigated in the internal policy records. Do the articles suggest monetary policymakers have a clear goal of reducing inflation, rather than just slowing it down? Do they suggest policymakers are willing to accept significant output losses to bring disinflation about, or are the losses highly circumscribed? Do the reports suggest monetary policymakers believe they can bring about disinflation on their own, or are their abilities limited?

October 1947. As discussed in Online Appendix B, monetary policymakers' public statements in this episode about their ability to reduce inflation using their existing tools were quite pessimistic, perhaps because they were lobbying for additional powers. As a result, the public would have perceived very low Federal Reserve commitment to reducing inflation. In September 1947, for example, the *Times* reported, "Marriner S. Eccles, chairman of the Federal Reserve Board, said today the country faces danger of 'economic collapse' if inflation continues unchecked"; with regard to monetary policy, the article said only, "he suggested that … [b]rakes should be applied to bank expansion of private credit, and the Federal Reserve Board should be given more power to do the job" (9/26/1947, p. 3). In a front-page story in November headlined "Eccles Gives Plan to Curb Inflation by New Bank Rule," the *Times* reported, "Eccles asked for [new] authority" in order to be able to pursue "a Federal Reserve Board anti-inflation program … which he said would go to the roots of the problem rather than dealing merely with its effects" (11/12/1947, p. 1). The following March, it reported, "The Federal Reserve Board said tonight that the economic outlook calls for further increase in bank lending that will 'contribute to the resumption of the general price rise,'" and, the Federal Reserve "suggested that the board could check the situation and control the expansion of credit if given new powers" (3/19/1948, p. 35). Thus, the public would have had little reason to expect the Federal Reserve to be successful in this episode.

August 1955. Readers of the *New York Times* would have perceived only mild Federal Reserve commitment to reducing inflation in this period. Monetary policy was regularly described using such terms as "mild restraint" (8/7/1955, p. 1), "relatively 'tight' money" (10/15/1955, p. 1), intended "to guard against inflationary pressures" (8/25/1955, p. 31), and "aimed against possible development of inflation" (9/10/1955, p. 23). Perhaps the strongest reports in the months following the monetary policy shift were: a headline stating, "Federal Reserve Lifts Loan Rate to Curb Inflation," with the accompanying article saying the purpose of the shift was to "diminish" one "source of inflationary pressure" (8/4/1955, p. 1); "The Federal Reserve has every intention of supplying enough reserves to keep the economy moving upward—gently. … The key question confronting authorities is … whether the money supply can be kept in hand … without creating too severe a pinch and perhaps setting off a dip in the economy" (9/26/1955, p. 13); and in an article about a discount rate increase, a subheadline saying, "Advance … Aimed at Curbing Credit to Halt Inflation," with the article explaining that the change was "part of the Reserve Board's effort to tighten credit to keep the boom in the economy from 'running away' into inflation" (11/18/1955, p. 1). With the exception of the reference to the effort "to halt inflation," none of these clearly referred to reducing inflation rather than preventing it from rising. An article in November mentioned that Federal Reserve Chairman Martin "has been conspicuous for his absence from the speaker's platform of late" (11/23/1955, p. 31), suggesting the monetary policymakers were not actively trying to communicate strong commitment.

September 1958. The Federal Reserve's strong commitment to eliminate inflation in this episode received considerable attention. An article two days after a front-page story reporting on an increase in the discount rate said: "The 'Fed' took its action for one simple reason: it was telling the business world and the labor world that it was not going to tolerate another case of recovery from recession turning into inflation. If necessary, it was saying between the lines, we will even … permit undesirably high levels of unemployment for a while. We will do so because we are convinced that by far the most serious threat facing the American economy is the emergence of a feeling that inflation is inevitable"—though the article did go on to caution, "it might not work" (8/17/1958, p. E10). Two months later, the *Times* said of "those who control the Federal Reserve System and the Treasury" that "[t]heir common objective is to convince the American public, and especially the American investor, that the prospect in this country is for price stability, not eternal 'creeping' inflation." It also said, "Tight money in the 1955–57 boom did not stop inflation. The natural conclusion is that in the next boom money must be even tighter." But again there was caution, with the article noting, "no one knows what the outcome will be" (10/7/1958, p. 51). Numerous articles reported similar themes (8/15/1958, 8/17/1958, 9/7/1958, 9/18/1958, 9/21/1958, 10/18/1958, and 10/26/1958). Given these reports, readers would likely have perceived that the Federal Reserve was highly committed to disinflation in this episode.

***December* 1968.** The *Times* gave mixed messages about whether monetary policymakers' focus was on reducing inflation or preventing it from rising. A good illustration is provided by the coverage of the December discount rate increase (which was the event that most resembled an announcement of the shift in policy). The first story emphasized preventing inflation from rising: one subheadline was "Inflation Danger Cited," and the article, quoting the Federal Reserve's statement, said the move was taken "'in furtherance of a policy of restraint' on the booming economy" and "'in light of the resurgence of inflationary expectations'" (12/68/1968, p. 1). But a story the next day said the increase was "a sign that the monetary authorities are prepared to take on the job of bringing inflation to a halt" (12/19/1968, p. 1). And a slightly later analysis took a middle ground: "the Fed means business and is determined to dampen demand and inflationary expectations" (12/29/1968, p. F1).

Although the FOMC was described as willing to accept output costs, there was considerable emphasis on its desire to avoid a recession. The *Times* repeatedly quoted Martin's statement that the goal was to "disinflate without deflating" (2/27/1969, p. 1; "without deflating" was interpreted as meaning avoiding a recession—see for example 6/1/1969, p. E11). Only a few articles provided evidence of a willingness on the part of monetary policymakers to risk large output costs (1/14/1969, p. 55, and 2/27/1969, p. 1). And when numbers were given for their expectation of the rise in unemployment, they were small (1/14/1969, p. 55; 2/27/1969, p. 55).[1] Given these reports, readers of the *Times* would likely have perceived mild to medium Federal Reserve commitment to disinflation.

April 1974. Readers would have perceived some, but noticeably limited, Federal Reserve commitment to disinflation in this episode—indeed, somewhat less than in the 1968 one. They would have learned that monetary policy was viewed as tight, that monetary policymakers were very concerned about inflation and probably that they wanted to reduce it, and that they were willing to accept output costs to address it. Representative milder statements included "a somewhat greater resolve to bring inflation under control through diminished credit expansion" (5/5/1974, p. F1), and "the … avowed intention to pursue a relatively restrictive monetary policy 'to fight inflation'" (4/24/1974, p. 53). Representative stronger ones included a report that Federal Reserve Chairman "Burns … indicated an iron-willed determination to come to grips with the inflation problem" (4/28/1974, Business and Finance, p. 23), and an editorial saying that monetary policymakers "are seeking to make clear to the world that they intend to bring United States inflation under control … no matter what the pain for housing or any other particular sector" (4/26/1974, p. 36).

However, statements like those about "bring[ing] inflation under control" or "com[ing] to grips" with inflation only implied that the goal was reducing inflation rather than preventing it from rising further. In addition, there were no reports of a specific ultimate objective for inflation, and only scattered vague references to restoring price stability (for example, an article 7/31/1974, p. 41, quoting Burns saying the current "rate of money growth is still too high for stability of average prices over the long term"). The strongest indications of the Federal Reserve's willingness to stick with its policy were the general references to "iron-willed determination" and "no matter what the pain" noted above. And importantly, readers would have learned that the Federal Reserve did not have broad support for its policies and that there were concerns about financial stability. For example, a lead story in September had a three-column headline, "Leading Economists Feel Federal Reserve Needs to Ease Monetary Policy," reporting that the economists told the President at a White House meeting that the Federal Reserve should ease policy moderately even "[t]hough inflation will continue" (9/6/1974, p. 1); and an analysis in May said, "One highly visible corporate failure … could result in losing the war against inflation" (5/5/1974, p. 51). Based on these reports, readers of the *New York Times* would likely have perceived only mild commitment to genuinely lowering inflation in this episode.

August 1978. The news reports suggested little Federal Reserve commitment to disinflation in this episode—even less than in 1968 and 1974. In the months before the policy shift, there were reports that the Federal Reserve might take strong steps to reduce inflation. For example, an editorial said that Federal Reserve Chairman Miller "has made it clear that if the White House does not lead the fight against inflation, the Fed will … do the job in the only way it can—through tight money and high interest, meaning an induced recession" (4/3/1978, p. A22). But such discussions largely disappeared once policy actually shifted. Perhaps the strongest was an analysis reporting, "The Federal Reserve System apparently has adopted a 'get-tough' attitude to combat excessive money growth and inflation, a sharp change" from its previous "cautious, gradualistic approach," and quoting an observer saying: "It now appears the Fed is willing to push

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[1] An article in March 1969 described the Federal Reserve's goal as "a soft landing" (3/16/1969, p. F1). This is the earliest use of this term in the context of reducing inflation we are aware of.

the economy close to recession in order to reduce inflation pressures" (9/25/1978, p. 36).[2] But more typical were an article about Miller discussing various measures to deal with inflation with almost no mention of monetary policy (8/25/1978, p. 3); and an article reporting that "Miller was emphatic in rebutting suggestions that the American economy was headed for a deep depression or even a mild recession because of the present high level of interest rates," and that he said that "Government would be wise to try to keep real economic growth in a range of 3 to 4 percent a year for the next six years" (11/21/1978, p. D13). Based on these reports, readers would have likely perceived very low Federal Reserve commitment to disinflation in this episode.

October 1979. In this episode, readers of the *New York Times* would have had substantial but not overwhelming grounds for believing that monetary policymakers would pursue anti-inflationary policy in the face of obstacles. Some of the evidence of strong commitment included Federal Reserve Chairman Volcker being described shortly after his appointment as "perhaps at the forefront of those who would weight inflation to the exclusion of most everything else" (8/26/1979, p. E5); a report of Volcker proclaiming "a very strong and united commitment by the Fed to stay the course" of moderate money growth, and saying that "[w]e have 'begun to lay the foundation for a sustained inflation fight'" (10/16/1979, p. A1); a report in late October that Volcker "said he had no intention of backing down on his program to restrain growth in the money supply" (10/29/1979, p. D5); and a report in January that Volcker "pledged today to maintain a 'steady-as-you-go' course in fighting inflation by slowing growth in the nation's money supply," and quoting him calling inflation "the No. 1 economic problem we face" (1/23/1980, p. D7).

Two features of the news reports tempered this evidence of high commitment, however. First, there was little indication of the long-run objective beyond such phrases as "bringing inflation under control" (10/7/1979, p. 1), or "bringing down the rate of inflation" (11/28/1979, p. D2); a rare exception was a report of Volcker saying, "What we have to work toward over a period of time is getting back to a noninflationary situation" (10/29/1979, p. D5). Second, there were repeated, prominent references to the possibility that political pressures, undercutting fiscal actions, or internal dissension might prevent the Federal Reserve from seeing its policy through. As examples, an analysis at the time of the October 1979 policy shift said, "both Administration and outside economists worry about the difficulty of maintaining monetary and fiscal restraint over the several years needed to lick inflation" (10/7/1979, p. F1); an article on corporate executives' reaction to the shift had the subheadline, "Fear Political Pressure to Ease High Loan Rates" (10/15/1979, p. D1); and an analysis reported, "Another challenge facing Mr. Volcker is in holding the support of the other members of the Open Market Committee" (1/6/1980, Section 12, p. 10). Based on these reports, readers would likely have perceived high, but not extreme, Federal Reserve commitment to disinflation in this episode.

May 1981. The news reports in this episode suggest that Federal Reserve commitment to disinflation in 1981 was quite strong, and stronger than in 1979. However, the news appeared gradually rather than in a short, clearly defined period.

As in the previous episode, reports about the ultimate objective for inflation were rare and at best oblique. For example, one of the few hints of the long-run goal was a reference to "the principle that there should be a gradual reduction of money and credit growth until the money supply rises with real output" (3/30/1981, p. D2).

There were two important differences from the 1979 episode. First, the administration was

[2] Recall that our source for the period August 10, 1978—November 5, 1978 is the *Wall Street Journal*.

described as highly supportive. For example, the *Times* reported that "Reagan's call for the Federal Reserve to reduce the growth of the nation's money supply gradually" (which it described as "not out of line with current Fed policy") "has reinforced the expectations of many credit market analysts that inflation will ease in future years" (2/23/1981, p. D10). Perhaps as a result, although there were numerous reports of criticism, they rarely suggested it would lead to changes in policy.

Second, the 1981 effort was explicitly described as stronger than the 1979 one. This happened in two waves. The sharp fall in interest rates in response to the rapid downturn in early 1980 had led to reports of monetary policymakers' commitment to reduce inflation becoming less frequent and somewhat pro forma (see, for example, 6/13/1980, p. A1). The first wave of reports of redoubled commitment came in late 1980 and early 1981. The *Times* reported that Volcker acknowledged that "[t]he underlying inflation rate today appears at least as high, and probably higher, than a year ago" (1/8/1981, p. D1), but that monetary policymakers "said that the lack of improvement in the prospects for curbing inflation had renewed their conviction that the Federal Reserve should maintain a tight monetary policy" (1/5/1981, p. A1). It also said, "The Federal Reserve's ever-tightening grip on the nation's monetary valves is a signal that the central bank is determined to squeeze the worst of inflation out of the economy—even if it produces a hair-curling recession next year" (12/14/1980, p. E5).

The second wave of news reports suggesting that the Federal Reserve's commitment in 1981 was stronger than in 1979 came in May and June 1981, after several articles in late April and early May described continuing doubts (for example, 5/3/1981, p. F1, 4/20/1981, p. D6, and 4/30/1981, p. D12). A front-page story in early May cited one reason for an increase in the discount rate as being "to signal to the financial community that it will redouble its efforts to hold down growth of the money supply" (5/5/1981, p. A1). A week later, the *Times* reported, "the Federal Reserve Board is making a most aggressive effort to throttle growth of the money supply," and, "the Fed has indicated that it will now act more quickly and forcefully to control the money supply (5/13/1981, p. D1). An article quoted Volcker saying, "I think we have to do what we have to do," and, "I don't see any reason for deviating, irrespective of what happens in fiscal policy" (6/6/1981, p. 30). Another quoted an analyst saying: "Forget about October '79. This is much tighter" (6/28/1981, p. F1).[3]

Based on the reports in the *New York Times*, readers would have perceived the Federal Reserve as extremely committed to disinflation in this episode.

December 1988. As in the 1968 episode, the *Times* provided mixed messages about the strength of the Federal Reserve's commitment to disinflation in this episode. After a long period when the focus was on whether inflation might rise, there were prominent reports in January 1989 that monetary policymakers wanted to reduce it. The lead story on January 25, referring to the Federal Reserve Chairman, bore the headline, "Greenspan Calls Inflation Too High and Vows Action," with the subheadline, "His Goal Is Stable Prices" (1/25/1989, p. A1; see also 1/15/1989, Sunday Magazine, p. 18). In addition, Greenspan had a somewhat clear ultimate objective, which was reported repeatedly in various forms—for example, "'price levels sufficiently stable so that expectations of change do not become major factors in economic decisions'" (1/25/1989, p. A1). And there were scattered references to "perseverance," "commitment," and "resolve" (for

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[3] Further reinforcing the view in Romer and Romer (2023) that an important part of the shift occurred in May 1981, later articles, including one on the release of the minutes of the May FOMC meeting, cited May as a date of a significant shift in policy (7/20/1981, p. D3, and 8/31/1981, p. D3).

examples, see 1/30/1989, p. D7, 2/22/1989, p. D1, and 2/26/1989, p. F1, respectively).

But there were multiple signs in the news reports that the Federal Reserve's commitment to disinflation was limited. Articles often focused just on whether policy would prevent inflation from rising, or mixed together the issues of preventing it from rising and reducing it. For example, an article reported that Greenspan said that "recent signs of accelerating inflation … '[are] troubling, especially with inflation already at a level that would be unsatisfactory if it persisted'" (2/24/1989, p. D1). Similarly, policy actions were largely described as efforts to keep inflation from rising, rather than active steps to reduce it. For example, a lead story on an increase in the discount rate was headlined "Federal Reserve Raises Loan Costs to Slow Inflation," and began, "Intensifying its drive to halt rising inflation," with no mention of a desire to reduce inflation (2/25/1989, p. 1). An article a few days earlier quoted an analyst saying: "To get inflation down … would have required a much tighter monetary policy" (2/22/1989, p. D16).

Relatedly, although there were some comments that monetary policy risked causing a recession (for example, 3/21/1989, p. D2), policymakers were generally portrayed as wanting to steer well clear of recession and to bring inflation down quite slowly. One story referred to "[t]he slowing to a 2 percent-plus level of growth that the Fed seeks" (3/22/1989, p. D1), and another noted that the Federal Reserve's recent monetary policy report said that "'a prudent effort to restore price stability over time' could co-exist with a slightly higher inflation rate in 1989" (2/26/1989, p. F1). In addition, there was speculation that pressure from the Administration to not follow very tight policy was affecting Federal Reserve decisions. For example, one article reported, "Many financial market experts … said that Mr. Greenspan has been more willing to accommodate the Administration's views of the economy than some former Fed chairmen have" (2/17/1989, p. D1). Finally, we found no reports in this episode of monetary policymakers having close to a "whatever it takes" approach to reducing inflation.

Based on these news reports, the public would have perceived at most a moderate level of commitment on the part of the Federal Reserve to reducing inflation.

LESSONS FROM HISTORY FOR SUCCESSFUL DISINFLATION

ONLINE APPENDIX D:

IDENTIFICATION OF DAYS USED IN THE HIGH-FREQUENCY ANALYSIS

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Overview. This appendix describes how we identify dates in the 2021–2022 period when there were large increases in the nominal 2-year Treasury interest rate that were primarily attributed to new information about monetary policymakers' commitment to disinflation. As described in Section IV.B of the paper, we begin by finding days over the period June 16, 2021–November 7, 2022 when the 2-year rate rose by 8 or more basis points. As explained in the paper, we then use three criteria to determine which of these days to include in the sample: whether the increase was attributed mainly to Federal Reserve commitment; whether no significant other reason for the increase was given; and whether the description reported actual new information about that commitment.

To identify the increases that satisfy these criteria, we examine articles in the *New York Times* and the *Wall Street Journal*. Both the *Times* and the *Journal* generally have an article summarizing market developments and describing what appeared to be the main reasons for those developments each day that markets are open. (The *Times* articles on market developments are often supplied by the Associated Press; also, occasionally there is a separate article specifically about developments in bond markets, especially in the *Journal*.) We always begin with the article on market developments in the *New York Times*. In cases where that article identifies a data release as the main source of the rise in interest rates, we rule the day out without investigating further. For the remaining days, we also examine the *Wall Street Journal* article on market developments. In addition, we search for other potentially relevant articles in both publications on both the day of the increase and the next day. Our searches are broad, encompassing the search terms as "interest rates," "bond," "bonds," and "Federal Reserve." The searches typically return many articles in addition to ones relevant to our analysis, and we did not find any cases where our initial search appears to have missed any relevant articles.

The end result of this process is that we find seven days that clearly meet all three criteria. These comprise our "narrow" sample. Five additional days clearly satisfy the first two criteria but are somewhat questionable regarding the third, generally because the descriptions in the *Times* and the *Journal* attribute the increase to market participants reevaluating recent news about the strength of monetary policymakers' commitment to disinflation, rather than to fresh news about their commitment. We include these five days in our "broad" sample.

Here, we first provide descriptions of the evidence from the *New York Times* and the *Wall Street Journal* for each day we include in the samples. We then briefly describe the evidence that leads us to exclude the remaining days with significant increases in the 2-year rate. Fortunately, with only one exception (described below under 11/22/2021), none of the articles we examined make any mention of changes in interest rates on inflation-protected securities, so we were able to determine what days to include in the sample with essentially no knowledge of what happened to those rates.

Days in the Narrow Sample. We begin with the seven days in our narrow sample, ordered from largest to smallest increase in the 2-year rate.

3/21/2022 (17-basis-point increase in the 2-year rate). The *New York Times* reported in its article about market developments, "Federal Reserve Chair Jerome Powell said the central bank was prepared to move more aggressively if need be to contain inflation. Bond yields rose sharply following Powell's remarks" (3/22/2022, p. B.2). And a *Times* article specifically about Powell's remarks said, "His comments were the clearest statement yet that the central bank was ready to forcefully attack rapid price increases" (3/21/2022 [no page number]).Similarly, the *Wall Street Journal* article on market developments began, "Investors sold stocks and government bonds after Federal Reserve Chairman Jerome Powell reiterated the central bank's commitment to controlling inflation through a rapid series of interest-rate increases" (3/22/2022, p. B.10). A front-page story in the *Journal* the same day stated, "Federal Reserve Chairman Jerome Powell said the central bank was prepared to raise interest rates in half-percentage-point steps and high enough to slow the economy if it concluded such steps were warranted to bring down inflation" (3/22/2022, p. A.1).

7/6/2022 (15-point increase). The article in the New *York Times* about market developments said, "Wall Street capped another choppy day of trading Wednesday with modest gains for the major stock indexes, after investors combed the minutes from the Federal Reserve's most recent interest rate policy meeting for clues about what the central bank may do next to fight inflation. … The minutes from the Fed's two-day meeting last month show that the central bank's policymakers concluded higher interest rates could be needed to restrain what they saw as a worrying trend: consumers starting to anticipate higher inflation" (7/7/2022, p. B.2). A front-page article in the *Times* the same day said, "Minutes from the Fed's June meeting … made it clear that officials are eager to move rates up to a point where they are weighing on growth as policymakers ramp up their battle against inflation," and, "Fed officials increasingly worry that they need to prove their commitment to pushing prices lower" (7/7/2022, p. A.1). According to the *Wall Street Journal* on market developments, "Fed officials concluded at their meeting last month that they needed to pick up the pace of interest-rate increases because of an increasingly worrying inflation outlook" (7/7/2022, p. B.11). On its front page, it reported, "The overall tone of the minutes suggest[s] 'the Fed upgraded the inflation problem to a five alarm fire,' said Omair Sharif …. The minutes also revealed officials' growing acceptance that fighting inflation might lead to higher risks of a recession, but they saw that as 'a cost they're willing to pay,' said Michael Feroli" (7/7/2022, p. A.1).

11/22/2021 (11-point increase). The *New York Times*'s article on market developments prominently featured "President Biden's decision to renominate … Jerome H. Powell for another four-year term as chair of the Federal Reserve," and went on to report, "yields on government bonds ticked higher as the day went on, driven in part by expectations that a Fed led by Mr. Powell will ultimately respond to higher inflation by more aggressively raising interest rates" (11/23/2021, p. B.2). Similarly, the article in the *Wall Street Journal* on market developments began, "Yields on U.S. government bonds rose and market-based inflation expectations fell Monday as the prospect of a second term for Federal Reserve Chairman Jerome Powell reinforced bets that the central bank will fight inflation by raising interest rates in the coming years" (11/23/2021, p. B.1).

1/26/2022 (11-point increase). In its article on market developments, the *New York Times* reported, "Jerome H. Powell, the chair of the Federal Reserve, suggested that the central bank could move quickly to raise interest rates as it aimed to cool down inflation" (1/27/2022, p. B.1). And a front-page story in the *Times* on the FOMC's statement and Powell's press conference said, "Jerome H. Powell, the Fed chair, said the central bank could raise rates imminently as officials cut back help for the economy. Federal Reserve officials signaled on Wednesday that they were on track to raise interest rates in March, given that inflation has been running far above policymakers' target and that labor market data suggests employees are in short supply. … 'The Fed has completed its pivot from being patient to panicked on inflation,' Diane Swonk, the chief economist at Grant Thornton, wrote in a research note to clients" (1/27/2022, p. A.1). In an article on bond-market developments, the *Wall Street Journal* said, "U.S. government bond yields climbed Wednesday after the Federal Reserve signaled plans to begin raising interest rates in

March. … Analysts and investors said the move was fueled by Mr. Powell's emphasis on fighting inflation over supporting the economy" (1/27/2022, p. B.11). Another article in the *Journal* quoted Powell saying: "We're prepared to use our tools to assure that higher inflation does not become entrenched" (1/27/2022, p. A.2).

3/16/2022 (10-point increase). The *New York Times* article on market developments did not provide any information about what happened to interest rates (3/17/2022, p. B.2). But a front-page story headlined "Fed Raises Interest Rates in Initial Step Toward Taming Inflation" quoted Powell saying: "We're strongly committed, as a committee, to not allowing this higher inflation to become entrenched, and to use our tools to bring inflation back down to more normal levels"; it also reported, "Powell made clear on Wednesday [3/16] that … the Fed's policy committee knows it needs to act to restore price stability. 'We're not going to let high inflation become entrenched,' Mr. Powell said" (3/17/2022, p. A.1). The article on market developments in the *Wall Street Journal* began, "Stocks climbed in a volatile session and bond yields jumped after the Federal Reserve said it would raise interest rates for the first time since 2018," and also reported, "'It seems very much like they wanted to send a message that they're fighting inflation and they're going to fight it fast and get it under control,' said Kathy Jones"; and somewhat confusingly, it said, "Bond yields rose after the announcement [of the Federal Reserve's interest rate increase]. … The climb in bond yields reflects investors' growing bets that Russia's invasion of Ukraine won't slow the momentum toward higher interest rates" (3/17/2022, p. B1).

4/5/2022 (8-point increase). The *New York Times* article on market developments began, "Stocks closed lower and bond yields jumped Tuesday as remarks by a Federal Reserve governor fueled expectations on Wall Street that the central bank is prepared to more aggressively raise interest rates and take other steps in a bid to tame surging inflation" (4/6/2022, p. B.2). The *Wall Street Journal* article on market developments was headlined, "Stocks Slip on Hawkish Fed Tone—Brainard's comments on inflation measures trigger selloff, as Nasdaq loses 2.3%," and reported, "Fed governor Lael Brainard said at a conference that the central bank is committed to taking steps that will cut inflation this year" (4/6/2022, p. B.13). A *Journal* article about the same event began, "A top Federal Reserve official said the central bank is strongly committed to taking steps that will reduce inflation this year," and reported, "'It is of paramount importance to get inflation down,'" Ms. Brainard said," and, "The Fed is 'prepared to take stronger action if indicators of inflation and inflation expectations indicate that such action is warranted,' she said" (4/6/2022, p. A.2).

4/21/2022 (8-point increase). The *New York Times* reported in its article on market developments, "Jerome H. Powell, reiterated that the central bank was preparing to raise interest rates at a quicker pace to cool down inflation" (4/22/2022, p. B.2). A *Times* article that was specifically about Powell's remarks began, "Fed Chair Jerome Powell on Thursday [4/21] signaled that the central bank was prepared to raise interest rates rapidly starting in May as it tries to cool down the economy and prevent fast inflation from becoming a lasting feature" (4/21/2022 [no page number]). In its article on market developments, the *Wall Street Journal* cited Powell's comments as important to the rise in yields, but said of them merely, "Fed Chairman Jerome Powell signaled Thursday that the central bank was likely to raise interest rates by a half percentage point at its meeting next month" (4/22/2022, p. B.1).

Days only in the Broad Sample. We next turn to the five days that satisfy our criteria less clearly, and so are in the broad sample but not the narrow one.

6/13/2022 (34-point increase). Both the *New York Times* and the *Wall Street Journal* attributed the rise in interest rates to changing views about the Federal Reserve's commitment to disinflation, but did not cite specific news. The *Times* article about market developments, which was on the front page, said, "Monday's trading ended with reports that the Fed is likely to discuss making its biggest interest-rate increase since 1994 when policymakers meet this week. 'The Fed needs to hike policy rates more aggressively if it has any hope of bringing inflation down,' said Seema Shah" (6/14/2022, p. A.1). Another *Times* article had the headline, "Fed May Eye Biggest Rate Jump Since '94" and reported, "The string of worrying news has caused economists and investors alike to bet that the central bank will begin to raise interest rates at a more rapid clip to signal that it recognizes the problem and is making fighting inflation a priority. 'They've made it pretty clear that they want to prioritize price stability,' said Pooja Sriram, U.S. economist at Barclays. 'If that is their plan, a more aggressive policy stance is what they need to be doing'" (6/14/2022, p. B1). The *Wall Street Journal* article on market developments began, "U.S. government-bond yields jumped to their highest closing levels in more than a decade Monday, propelled by fears that persistent inflation could push the Federal Reserve to raise interest rates higher and faster than expected. … The surge extended in after-hours bond trading, which carried the 10-year yield briefly above 3.4%, following a *Wall Street Journal* report that Fed officials were likely to consider raising interest rates by a larger-than-expected 0.75 percentage point this week to fight inflation" (6/14/2022, p. B1).[1]

11/3/2022 (10-point increase). The *New York Times* attributed the rise to reassessments of likely Federal Reserve actions to combat inflation, but did not cite any specific news. Its article on market developments said, "Treasury yields again rose to multiyear highs Thursday [11/2] as investors looked ahead to a closely watched job market report from the government that could influence the Federal Reserve's next move in its fight to bring down inflation" (11/4/2022, p. B.2). The *Wall Street Journal* much more clearly attributed the rise to a continued reassessment of the Federal Reserve's commitment to disinflation in light of Powell's statements at his press conference on November 2. Its article about bond market developments bore the headline, "Yields on Treasurys Jump as Fed Takes Hard Line," and reported, "Thursday's declines [in bond prices] extended losses that began after Fed Chairman Jerome Powell's Wednesday afternoon warning that high inflation means it is still too soon to think about any pause in the central bank's inflation-fighting campaign. … The market response 'shows that Powell did a good job indicating the Fed remains adamantly focused on bringing inflation back into a more subdued range,' said Blair Shwedo" (11/4/2022, p. B.1).

9/15/2022 (9-point increase). The *Wall Street journal*'s article on market developments was headlined, "Major Indexes Fall As Traders Expect An Aggressive Fed," and quoted an analyst as saying, "It looks like central banks certainly have got religion in terms of their inflation-busting mandate and they're unlikely to swing that to stabilizing economic growth" (9/16/2022, p. B.11). The *New York Times* article on market developments featured monetary policy less prominently, saying, "High prices and the Federal Reserve's aggressive plan to raise interest rates as a solution remain Wall Street's main focus. Investors also worry the Fed's rate hikes will tip the economy into a recession that could hurt company earnings" (9/23/2022, p. B.2). But another *Times* article

[1] The after-hours article began, "A string of troubling inflation reports in recent days is likely to lead Federal Reserve officials to consider surprising markets with a larger-than-expected 0.75-percentage-point interest-rate increase at their meeting this week" (6/14/2022, p. A.1). The after-hours article, together with the reference mentioned above in the *Times* to "reports that the Fed is likely to discuss making its biggest interest-rate increase since 1994," make it natural to wonder if some of the increase on 6/13 reflected the "informal communication" suggested by Cieslak, Morse, and Vissing-Jørgensen (2019).

pointed to a reassessment of the Federal Reserve's commitment, reporting, for example, "Federal Reserve officials are laser-focused on job gains and wage growth as they quickly raise interest rates to constrain the economy and slow rapid price increases. Officials are convinced that they must sap the economy of some of its momentum to wrestle the worst inflation in four decades back down to their goal of 2%" (9/15/2022 [no page number]).

9/22/2022 (9-point increase). The article on market developments in the *Wall Street Journal* began, "U.S. stocks dropped following the latest interest-rate increases from the Federal Reserve and other central banks, which have added to fears that the battle to control rising prices could bring a recession" (9/23/2022, p. B.11). Another article in the *Journal* the same day began, "This time, markets understood quite clearly what the Federal Reserve meant: Inflation is too high and it will likely take a recession to get it down. There is really no other way to interpret the economic and interest-rate projections Fed officials released Wednesday [9/21], and Chairman Jerome Powell's accompanying remarks" (9/23/2022, p. A.2). Yet another article that day had the headline, "Fed Action Pushes 30-Year [Mortgage Rate] to 6.29%," and reported, "The sharp rise is another product of the Federal Reserve's campaign to curb decades-high inflation. On Wednesday, the central bank raised interest rates for the fifth time this year. Officials indicated that more large increases are on the way even if such moves risk a recession" (9/23/2022, p. A.3). On the other hand, a fourth *Journal* article that day put more emphasis on interest rate increases abroad, beginning, "U.S. government bond yields surged Thursday, after foreign governments and central banks rushed to raise interest rates or otherwise support local currencies pressured by the dollar's strongest rally in a generation" (9/23/2022, p. B.1). In its article on market developments, the *New York Times* also placed somewhat more emphasis than the *Journal* on interest rate increases abroad, mentioning prominently that "central banks around the world hiked interest rates to fight inflation"; but it also reported, "Wall Street is worried that the Fed may be pumping the brakes too hard on an already slowing economy, which makes steering into a recession more likely. On Wednesday [9/21], Fed Chair Jerome Powell stressed his resolve to lift rates high enough to drive inflation back toward the central bank's 2 percent goal" (9/23/2022, p. B.2). The reason this date is in our broad sample but not our narrow one is that there was no clear news about monetary policy on 9/22—the main public events the articles referred to occurred before markets closed on 9/21. Nonetheless, the *Journal* and the *Times* attributed the rise in nominal rates largely to market participants reassessing the Federal Reserve's commitment to disinflation.

10/6/2022 (8-point increase). The *New York Times* article on market developments did not describe any new information about monetary policy, but did refer to the Federal Reserve's "bid to crush inflation" (10/7/2022, p. B.2). Another article in the *Times* was headlined, "Global Fallout From Rate Moves Won't Stop the Fed" (10/6/2022 [no page number]). And another quoted statements on 10/6 from multiple FOMC members, including a report that "Christopher Waller, a Fed governor, said on Thursday [10/6] that inflation had not shaped up the way he would want 'to support a slower pace of rate hikes' than the Fed had previously projected, and argued that a few more data points were unlikely to change his mind" (10/7/2022, p. B.3). The *Wall Street Journal* article on market developments also did not cite any news about monetary policy, but had the subheadline, "Markets seesaw this week as traders seek to read Fed's reaction to economic indicators." The only significant news it reported was that initial claims for unemployment insurance were slightly higher than expected, which would work in the direction of lowering interest rates rather than raising them (10/7/2022, p. B.11). A brief news item the same day had the headline, "Cook Stresses Need To Keep Raising Rates," and reported comments from two

Federal Reserve Governors suggestive of commitment to reduce inflation: "The Fed will need to keep rates at restrictive levels 'until we are confident that inflation is firmly on the path toward our 2% goal,' said Fed governor Lisa Cook," and, "Fed governor Christopher Waller, speaking separately at the University of Kentucky, said he still expects Fed officials to raise rates into early next year, even amid signs of progress on inflation" (10/7/2022, p. A.4).

Days Excluded from Both Samples. The remaining 31 days in our sample period when the nominal 2-year rate rose by 8 or more basis points do not satisfy our criteria.

A substantial number of the increases in the 2-year rate were attributed to data releases pointing to either higher inflation or stronger growth, and thus to tighter monetary policy to achieve a given objective. For example, the *New York Times* article on market developments on 2/10/2022, when the 2-year rate rose by 25 basis points, began, "Stocks slid and government bond yields jumped on Thursday after a key measure of inflation showed that consumer prices in the United States rose faster than expected in January, prompting investors to raise their bets on how quickly the Federal Reserve would tighten monetary policy" (2/11/2022, p. B.2). Other days when increases in the 2-year rate were attributed to data releases were 11/10/2021, 2/4/2022, 4/1/2022, 5/17/2022, 6/1/2022, 6/10/2022, 7/8/2022, 7/13/2022, 7/19/2022, 8/5/2022, 9/13/2022, and 10/13/2022. In most of these cases, we rule out the dates based just on the information in the *New York Times* article on market developments.

The other large group of days with substantial increases in the 2-year rate that do not meet our criteria are ones where news reports do not describe any clear news about either the economy or about monetary policymakers' commitment, and thus give no clear reason for the increase. For example, the most relevant parts of the *Wall Street Journal* article on market developments on 3/25/2022, when the 2-year rate rose by 17 basis points, were (3/26/2022, p. B.1):

> a renewed surge in bond yields tempered some of the enthusiasm in the stock market Friday. … Forecasters have been predicting that the Federal Reserve will lift interest rates faster than it currently projects to clamp down on inflation that remains at a multidecade high. Economists at banks including Citigroup and Bank of America this week raised the prospect that the central bank will lift rates by half a percentage point at a time, in contrast to this month's quarter-point increase. Such forecasts have jolted the government bond market. … In a sign that investors were ratcheting up their interest-rate expectations, yields on short- and medium-term Treasurys, which are most responsive to Fed policy, were up more than those on longer-term bonds. … Some investors say that because the recent rebound in the stock market suggests investors are taking rate increases in stride, it may embolden the Fed to act more aggressively in lifting rates.

The only slightly relevant comments in the *New York Times* article on market developments were, "Bond yields rose significantly," and, "Central banks, including the Federal Reserve, are moving to raise interest rates to try to temper the effect of rising inflation" (3/26/2022, p. B.2).

Other days with no clear news are 1/14/2022, 3/14/2022, 4/14/2022, 4/19/2022, 9/6/2022, 9/9/2022, 9/19/2022, 9/23/2022, 9/29/2022, 10/19/2022, 10/28/2022, and 10/31/2022. The reports for a few of these days include some information about economic developments, though not ones that are cited as sources of the interest-rate increases, and some include allusions to monetary policy, but nothing remotely approaching news about the Federal Reserve's commitment to disinflation.

Of the remaining five days, three involve both news about Federal Reserve commitment and news about other developments that were viewed as important to the behavior of interest rates. The articles about market developments on 8/2/2022, when the 2-year rate rose by 16 basis points, cited news related to Federal Reserve commitment to disinflation and news related the visit of the Speaker of the House to Taiwan, which had led to "flight to safety" effects that were somewhat reversed on 8/2. For example, the *New York Times* said, "Treasury yields climbed through the day as concerns calmed a bit that the first visit by a U.S. Speaker of the House to Taiwan in 25 years could spark conflict between the world's two largest economies. Analysts also cited comments by Federal Reserve officials that suggested continued hikes to interest rates are coming in order to knock down inflation" (8/3/2022, p. B.2). Similarly, the *New York Times* article on market developments on 2/22/2022, when the 2-year rate rose by 9 basis points, included, "as the Federal Reserve prepares to pull back support for the economy amid high inflation," and, "Fed officials have indicated that they are preparing to raise interest rates, currently near zero" (2/23/2022, p. B.1). Another *Times* article was headlined, "Fed Is Poised to Cut Economic Help Swiftly Despite Russian Tensions" (2/22/2022 [no page number]). But the *Wall Street Journal* article on market developments focused almost entirely on various developments related to Ukraine, and made no mention of monetary policy (2/23/2022, p. A.1). Finally, the *Wall Street Journal* article on market developments on 2/14/2022, when the 2-year rate rose by 8 basis points, reported, "Yields on government bonds were whipsawed by the fast-moving situation. After initially falling as investors reached for the safety of U.S. Treasurys, they bounced back on [Russian Foreign Minister] Lavrov's comments and climbed further on comments from hawkish Fed officials about the pace of interest-rate increases" (2/15/2022, p. B.1).

The final days with large increases in the nominal 2-year rate, 3/2/2022 and 3/8/2022 are more idiosyncratic. The articles in both the *New York Times* and the *Wall Street Journal* about market developments on 3/2, when the 2-year rate rose by 19 basis points, cited news about the Federal Reserve, but news at best only slightly related to greater commitment—indeed, arguably the news pointed to lower interest rates going forward than had been expected. All that the *Wall Street Journal* article said about monetary policy was, "investors parsed testimony on the Federal Reserve's plans to raise interest rates," and, "Fed Chairman Jerome Powell, appearing before the House Committee on Financial Services, said he would propose a quarter-percentage-point rate increase at the central bank's meeting in two weeks. That alleviated concerns on Wall Street that the central bank would raise rates by half a percentage point" (3/3/2022, p. B.1). Similarly, the *New York Times* article on market developments reported, "Federal Reserve Chair Jerome H. Powell said he supports a more modest rise in interest rates this month than some investors had feared," and, "Mr. Powell's comments helped drive the market higher" (3/3/2022, p. B.2). The articles about Powell's testimony painted a somewhat more nuanced picture. For example, the *Journal* reported that "he laid the groundwork for the possibility of half-point increases this summer. … 'This is strong, high inflation, and it's very important that we get on top of it, and that's exactly what we're going to do,' Mr. Powell told lawmakers" (3/3/2022, p. A.1). But the fact that the summaries of the testimony in analyses of market developments did not refer to new indications of Federal Reserve commitment mean that this date does not satisfy our criteria.

The remaining day, 3/8/2022, when the 2-year rate rose by 8 basis points, falls in between the cases where there was news unrelated to monetary policymakers' commitment and no clear news: the *New York Times* article on market developments did not mention interest rates at all (3/9/2022, p. B.2), while the *Wall Street Journal* article on market developments viewed a range of developments related to Ukraine as driving changes in stock and bond prices (3/9/2022, p. B.1).

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LESSONS FROM HISTORY FOR SUCCESSFUL DISINFLATION

ONLINE APPENDIX E:

NARRATIVE EVIDENCE ON THE ENDS OF DISINFLATIONARY EPISODES

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This appendix provides a description of the narrative evidence about when monetary policymakers moved away from active disinflationary policy in each episode. It also discusses whether monetary policymakers stopped because they had achieved their inflation goal. For cases where policymakers ended active disinflationary policy before inflation was reduced, we describe the reasons given for the premature end.

October 1947. Monetary policymakers did not stop pursuing active disinflationary policy until it became clear in early 1949 that the economy was weakening and there was no longer inflation. There continued to be clear statements of a willingness to accept output losses to reduce inflation, and of a desire to get the inflation down to zero, through late 1948. At the October FOMC meeting, despite thinking "that inflation was in the process of wearing itself out, that the prospect was for moving sidewise or even downward, [and] that a serious downturn was unlikely," the recommendation of Associate Economist John Williams was that "the present Federal Reserve policy directed toward the raising of short-term interest rates should be continued as vigorously as possible" (*Minutes*, 10/4/1948, p. 5). The FOMC's Economist, Woodlief Thomas, recommended tight policy to decisively address inflation sooner rather than later: he "stated … that if present demands for credit were not met the inflation might be broken at this stage, and that the Federal Reserve System should use such restraints as it had to avoid a worse collapse later on" (p. 4).

But by the meeting of February 28 and March 1, 1949, monetary policymakers' outlook had changed sharply. Thomas "referred especially to recent declines in prices," and went on to say that "the outlook continued to offer the possibility of a resumption of inflationary developments as well as a possibility of a sharp deflationary development …. He expressed the view that the more likely development would be the intermediate stage [that is, between a resumption of inflation and sharp deflation] with no more than a moderate recession" (*Minutes*, 2/28/1949, p. 4). Federal Reserve Bank of New York President Allan Sproul referred to the "changing business and credit conditions," and, echoing Thomas, saw the most likely possibility path for the economy as intermediate between "a temporary hesitation with inflationary pressures being resumed later in the spring" and "the beginning of a downward spiral of deflation" (*Minutes*, 3/1/1949, p. 11). A Governor Lawrence Clayton referred to "the cessation of credit expansion and the growing opinion that the economy might be facing a depression" (p. 15), and went on to say that the argument for "an increase in the short-term rate on the grounds that it would be an anti-inflationary measure … was not now applicable" (p. 16). Similarly, Sproul said that "a further increase in the discount rate … would be interpreted as an indication of an anti-inflationary policy which would be difficult to justify" (pp. 12–13). Thus, it is clear that monetary policymakers had ended their anti-inflationary policy by March 1949, and that they did so because they believed they had likely achieved their objective of ending inflation.

The records of monetary policy for this period are relatively thin. The full FOMC met infrequently, and the Executive Committee generally focused only on narrow tactics. It is therefore difficult to determine when exactly to date the policy shift. Three considerations lead us to date it at the end of the October 1948–March 1949 period—that is, in March 1949. The first and most important stems from the fact that the only meetings of the full FOMC between October 1948 and the February/March 1949 meeting were in November 1948. There was some anti-inflationary language at the November meetings, such as a reference by Federal Reserve Chairman Thomas McCabe to "continuing inflationary pressures which called for an increase in the [short-term interest] rate" (*Minutes*, 11/15/1948, p. 4). But more importantly, there was nothing close to any explicit indication of a shift in policy; this suggests that there was no large change, and leaves the February/March 1949 meeting as the next time when there plausibly could have been a significant shift. Second, and relatedly, the monthly average 3-month Treasury bill rate rose slightly from July 1948 through January 1949 and remained steady through March 1949 (although it did not actually decline until July). Third, we find the contrast between McCabe's testimony in February 1949 and his testimony at his next Congressional appearance in May instructive. In February, he expressed hope that "the inflation may have run its course" (McCabe testimony, 2/14/1949, p. 1). But he said only that "[i]t is possible but it is by no means certain that … additional restraints for anti-inflation purposes will not have to be applied. … [N]o one can be sure that inflationary dangers are over rather than merely interrupted" (p. 3). Consistent with the focus of policy since 1947, the purpose of his testimony was to make the case for additional tools to combat inflation. But in May, it was clear that policy had changed sharply. He reported, "inflationary pressures have abruptly abated," and, "With the passing of the inflationary crest we acted promptly to relax credit restraints" (McCabe testimony, 5/11/1949, pp. 6 and 3).

August 1955. There was not a sharp or sudden shift away from the Federal Reserve's anti-inflationary policy in this episode. However, there was a substantial softening around April 1956. Starting roughly then, monetary policymakers saw even clearer evidence of actual inflation than they had seen before. For example, Associate Economist Ralph Young, reporting on the business situation, said in April: "At mid-April, the average [of industrial prices] was 5 per cent above the average for the first half of last year" (*Minutes*, 4/17/1956, p. 4). As another example, Federal Reserve Bank President Alfred Hayes reported in August, "The sizeable increases in steel workers' wages and steel prices are likely to start a chain reaction in other industries. Already there is some evidence that this is taking place. … Prices in many areas seem to confirm a tendency for effective demand to outrun available resources. In June, the consumer price index rose to a new high record, and a further increase is probable" (*Minutes*, 8/7/1956, p. 9).

However, the FOMC did little in response to the evidence of inflation. There were still scattered indications of a desire to eliminate inflation. In June for example, FOMC Economist Woodlief Thomas "stated that he had come to the conclusion that the Committee's interest was primarily in the money supply and the projection of a supply that would not permit inflation" (*Minutes*, 6/5/1956, p. 8). But the Committee seemed to have little interest in taking significant steps to achieve this goal. A typical meeting ended with "no change should be made in the Committee's policy at this time" (*Minutes*, 4/17/ 1956, pp. 21–22), or at most with a decision to "tend to resolve doubts on the side of tightness" (*Minutes*, 8/7/1956, p. 34). Broadly consistent with this, the monthly average 3-month Treasury bill rate was essentially flat from December 1955 to August 1956. We therefore date the end of the disinflationary policy as occurring in April 1956.

The reason for this backing off from active disinflationary policies was not that monetary policymakers viewed some inflation as unobjectionable. Any rise of prices above previous peaks was noteworthy and concerning (as with the statement above about "a new high record"). For example, Federal Reserve Bank of Kansas City President H. Gavin Leedy, after listing a series of problems in the economy, said that "most disturbing, … the price level is increasing" (*Minutes*, 9/11/1956, p. 24). Monetary policymakers stopped pursuing active disinflationary policy despite not having achieved their objective.

Instead, the source of the FOMC's failure to continue its active disinflationary policy appears to have been that it viewed both its power and its responsibility as limited—consistent with the reasons we describe in Section II of the paper for concluding that commitment was only moderate at the start of this episode. The inability of monetary policy to address inflation without support from business and labor was a constant theme in this period. In a speech in May 1956 (echoing his "punch bowl" speech of the previous year), Federal Reserve Chairman William McChesney Martin said that the Federal Reserve "cannot do the whole job. … If businessmen, bankers … stay on the sidelines, concerned only with making profits, letting the Government bear all the responsibility and weight of guidance of the economy, we shall surely fail" (Martin speech, 5/4/1956, p. 16; see also Martin speech, 1/6/1956, p. 4, and testimony, 2/8/1956, pp. 7–8). As another example, New York Vice President William Treiber (serving as an alternative for Hayes) said, "People are questioning whether there will be enough self-restraint on the part of labor in pressing its demands, and on the part of management in raising prices, to avoid another turn in the cost-price spiral" (*Minutes*, 6/5/1956, p. 10). Such considerations led Hayes to say in August, "monetary measures at best are probably of only limited effectiveness against a cost inflation such as we now face" (*Minutes*, 8/21/1956. p. 12).

The result was considerable sentiment that monetary policy had done its part even though inflation was continuing. In June, Governor James Vardaman "felt that the System had accomplished to a large extent what it set out to accomplish: it had awakened the economy to the dangers of inflation. Now the System could afford to coast along and not make conditions any tighter" (*Minutes*, 6/5/1956, pp. 17–18). In August, St. Louis Federal Reserve Bank President Delos Johns cited "danger that the monetary authorities might attempt to do more than they can reasonably be expected to do and to assume more responsibility than really belongs to them" (*Minutes*, 8/7/1956, p. 11); and Hayes said that policy "has been successful in restricting the growth of the money supply," and that "while continuance of a general policy of restraint is justified, we are inclined to doubt whether the use of open market operations to effect appreciably greater restraint would be justified" (*Minutes*, 8/21/1957, p. 11). Martin, after saying in August that he "did not know how much the System could do to deal with these forces but that it should be doing whatever it could" (*Minutes*, 8/7/1956, p. 33), said in September that "[w]e must also constantly keep in mind the question of how much money and credit policy can do …. [M]onetary and credit policy can possibly not do more than wave a red flag at the dangers presented. The Committee should wave this red flag, … but against the Juggernaut of Government spending, and against the Juggernaut of inflationary prices, it should not persuade itself that monetary and credit policy will be successful in halting what is occurring" (*Minutes*, 9/11/1956, p. 35).

September 1958. As in the 1947 episode, monetary policymakers did not switch away from their active disinflationary policies until they had considerable evidence they had achieved their objective. The FOMC continued to actively pursue disinflationary policy through the end of 1959. In September, Open Market Manager Robert Rouse still considered it noteworthy that the most recent data showed that "consumer prices rose … to an all-time high" (*Minutes*, 9/1/1959, p. 11), suggesting that policymakers still viewed any positive inflation rate as undesirable. Committee Economist Woodlief Thomas continued to express the view that "price increases during boom periods … have been great enough, along with failure of prices to decline during recession, to lend support to the view that creeping inflation is inevitable," and said, "Acceptance of this view by many people in business, academic circles, and Government, lies at the heart of many of the difficult problems that face the System at this time" (*Minutes*, 9/22/1959, p. 8). And Associate Economist Ralph Young referred to the current "anti-inflationary monetary policy" (p. 7). Federal Reserve Chairman William McChesney Martin said in a speech, "The thing that concerns us all is that for almost 10 years the trend of prices has been generally upward even though we have not been engaged in any major conflict. This recent experience has led some people to the erroneous conclusion that inflation is inevitable" (Martin speech, 10/16/1959, p. 1).

At the final FOMC meeting of the year, Martin said that "the System had maintained a consistent … course" over 1959 (*Minutes*, 12/15/1959, p. 43).

In early 1960, the FOMC gradually swung toward the view that it might have succeeded in defeating "inflationary psychology"—that is, the belief that inflation was normal. At the first meeting of the year, Associate Economist Guy Noyes reported, "in the forecasts for 1960 one finds much less assurance of the inevitability of inflation than in their counterparts of a year ago" (*Minutes*, 1/12/1960, p. 7). At the next meeting, Governor George King referred to the possibility "that the public was turning toward an expectation of less inflation" (*Minutes*, 1/26/1960, p. 27), and Federal Reserve Bank of Atlanta President Malcolm Bryan "said that he sensed a real shift in inflationary psychology" (pp. 31–32). In March, numerous participants expressed views along these lines (although there was not unanimity). Federal Reserve Bank of New York President Alfred Hayes said: "Price developments … have been rather satisfactory. The decline in the stock market may to some extent reflect the emergence of some less fatalistic views with respect to creeping inflation. Consumer and wholesale price indices have been generally stable, and sensitive prices have tended to decline" (*Minutes*, 3/1/1960, p. 31). Federal Reserve Bank of Dallas President Watrous Irons said that "businessmen and bankers in the district … were less inflation minded" (p. 37). King "suggested that the System might be entering a new era of monetary policy. … In the past, the System constantly had to be on guard against further expansion, but it would now have to become more sensitive to the other side of the problem as well" (pp. 56–57). Martin spoke about the issue at length, saying that "[i]n his view, the System had done a better job than it could have hoped for" (p. 67), going on to raise the possibility of "a long-run solution to the problem of inflation over the next few years" (p. 68), and reporting that "a leading student in the field … thought that inflationary psychology had diminished a great deal in the last three months" (p. 69) and, "Manufacturers who had subconsciously accepted [inflation] as part of the profit margin might now find themselves in the position of seeing their cost-price relationships changed" (p. 70).

With the exception of a decision for "'slight but not visible' easing" in February 1960 (*Minutes*, 2/9/1960, p. 59), the FOMC chose to keep policy unchanged until March. But in March, responding to the important shift they saw in the inflation situation (as well as, it should be noted, their perception of a weakening economy), the committee voted for what was described as by Martin as "moderately less restraint" or "slightly less restraint" (*Minutes*, 3/1/1960, p. 71). The FOMC also modified the policy directive to replace the phrase "restraining inflationary credit expansion in order to foster sustainable economic growth and expanding employment opportunities," which had been in effect since the previous May, with "fostering sustainable growth in economic activity and employment while guarding against excessive credit expansion" (p. 74). Consistent with this, the monthly average Federal funds rate was virtually flat from October 1959 through February 1960 before beginning to fall in March.

This evidence points to March 1960 as the best choice for dating the shift away from anti-inflationary policy. There were some indications in January, but no explicit decision to ease; and in February, there was little clear discussion and only a decision to ease a tiny amount. In March, in contrast, the discussion of their seeming success in addressing inflation and inflationary expectations was extensive, the directive was changed, and there was an explicit decision to ease.

December 1968. The FOMC initiated a disinflationary policy in December 1968. In the fall of 1969, the Board staff began pushing for less restraint. For example, in early October, FOMC Economist Charles Partee told Committee members: "it seems to me that policy has now essentially accomplished its objective of cooling off the economy to a point where inflationary forces will face an increasingly hostile environment. Accordingly, I believe that the Committee should now consider taking the first steps toward a posture that will be more sustainable for the longer run, by which I mean a policy that would encourage a resumption of moderate monetary expansion" (*Minutes*, 10/7/1969, p. 33). But, the FOMC did not go along. In late October 1969, Vice Chairman Alfred Hayes expressed a common view that: "We are still a long way from achieving our objective of checking the inflationary spiral, and there is room for doubt as to whether a sufficient cooling of the economy is in the offing. Under these conditions I believe we should make no change in our policy of firm restraint" (*Minutes*, 10/28/69, p. 52).

By the December 1969 FOMC meeting, a handful of members were pushing for less restraint. However, the majority continued to feel that continuing active disinflationary policy was still the appropriate course for policy. For example, Federal Reserve Bank of Dallas President Philip Coldwell said: "In his opinion, the Committee had to continue to accept the risks entailed in a severely restrictive monetary policy" (*Minutes*, 12/16/1969, pp. 59–60). Chairman Martin agreed, saying: "skepticism about the effectiveness of monetary restraint had almost disappeared. However, growing skepticism about fiscal policy was offsetting much of what had been achieved in the area of expectations. He thought the Committee had no real choice today except to maintain its present policy" (p. 67).

The first notable weakening of anti-inflationary policy occurred at the January 1970 FOMC meeting. Again, FOMC Economist Partee urged easing despite the fact that "[p]ressures on costs and prices remain intense," saying: "I continue to believe that the Committee should consider taking the first steps toward … a careful and gradual easing up in the System's exceptionally restrictive open market policies" (*Minutes*, 1/15/1970, p. 34). Partee's view that inflation remained a significant problem was seconded by the Open Market Manager who said: "with unemployment continuing at a low level and prices continuing to rise, there were few in the market who seemed to feel that the anti-inflationary program was really beginning to bite" (p. 24). A number of FOMC members spoke in favor of easing. For example, Hugh Galusha, President of the Federal Reserve Bank of Minneapolis, said: "that there had been some slight progress in the fight against inflation and that the time had come for a modest change in Committee policy" (p. 66). Likewise, W. Braddock Hickman, President of the Federal Reserve Bank of Cleveland, said: "the System should move promptly towards moderately less restraint implemented by open market operations" (p. 91). Chairman Martin agreed, saying: "he thought the time had clearly come for some adjustment in monetary policy" (p. 101). The directive from this meeting called for modest growth in bank credit and money, but the Open Market Manager thought that might be accomplished with no change in money market conditions (p. 108).

This weakening of the disinflationary policy became more overt at the February 1970 FOMC meeting, which was Arthur Burns's first as Chairman. At this meeting, the staff forecast for 1970 was "that we will be undergoing a period of substantial economic weakness during at least the first half of this year. Whether the adjustment now in process will ultimately be characterized as a recession is uncertain. … The progress we can realistically expect in getting inflation under control in 1970 is, in any case, distressingly small" (*Minutes*, 2/10/1970, p. 39). Burns began the meeting by saying: "that in his judgment economic developments had reached a point at which a rethinking of monetary policy was in order" (p. 3). Burns proposed a gradual but clear drop in interest rates (p. 84). Members split on whether his proposal was too aggressive or not aggressive enough. It passed with three dissents.

Because the change in policy was obvious at the January 1970 FOMC meeting, that is when we date the effective move away from active disinflationary policy in this episode. Data on the federal funds rate confirm a retreat from active restraint around this time. The monthly average funds rate held steady between January and February 1970, but then dropped a percentage point in March. Overall, the monthly funds rate declined from a peak of 9.2 percent in August 1969 to 4.9 percent in December 1970.

Because policymakers clearly perceived inflation as still above the desired level and unlikely to fall, the end of the 1968 disinflationary episode is a case of premature stopping. Thus, it is necessary to investigate the reason for the policy change.

One reason for the easing was a sense that the Federal Reserve had done all that it could do. Economist Partee told the Committee at the January 1970 FOMC meeting that: "we now have additional evidence that economic activity has ceased to rise in recent months," and "Pressures on costs and prices remain intense, but there is not much more that monetary policy can reasonably do about this once the excessive demand conditions aggravating the problem have been curtailed" (*Minutes*, 1/15/1970, pp. 31 and 34). This view was seconded by Federal Reserve Bank of Richmond President Aubrey Heflin, who said: "the degree of restraint the Committee had maintained in recent weeks might no longer be appropriate. That posture had been directed at forcing a significant slowdown in the rate of spending growth. If the economy had slowed as much as was now indicated, that objective had been achieved" (p. 76).

A more important motivation for the change in policy appears to have been concern about the relatively small output losses that were emerging. At the January FOMC meeting, Federal Reserve Bank of Boston President Frank Morris said: "the evidence seemed clear to him that the economy was moving into a contraction phase. Thus far, the figures suggested that the correction would be modest in amplitude—not of true recession proportions. Nonetheless, he thought it was important that the change in the economic climate be reflected promptly in at least a modest change in policy orientation" (*Minutes*, 1/15/1970, p. 50). Hugh Galusha, President of the Federal Reserve Bank of Minneapolis said that continuing with disinflationary policy would "be too risky" (p. 66). Chairman Martin, in his often somewhat inscrutable way, may have been agreeing with this motivation when he said that "he thought the time had clearly come for some adjustment in monetary policy. … On the theory that steel which bends is better than iron which breaks, he favored backing off slightly from the present posture" (p. 101).

At the February 1970 meeting, concern about a mild downturn again was a major motivation for loosening. For example, George Clay, President of the Federal Reserve Bank of Kansas City, said: "In view of the current and projected slowdown in real economic growth but still reflecting concern over the price inflation outlook, it would seem appropriate to permit modest growth in the financial aggregates" (*Minutes*, 2/10/1970, p. 68). Chairman Burns also expressed that view, saying: "As he assessed the evidence, it was consistent with the hypothesis that the economy was now entering a recession, although it did not prove that to be the case. He thought the Committee could not afford to ignore that possibility, nor could it ignore the evidence assembled by its own staff" (p. 86.).

A fairly minor reason given for moving away from disinflationary policy in this episode was the political economy argument that if monetary policy did not ease, fiscal policymakers would counteract the effects of monetary contraction with fiscal stimulus. For example, Frank Morris, President of the Federal Reserve Bank of Boston, said: "He would expect budgetary control to be abandoned immediately if the Congress and the Administration were to decide that the country was in a recession. The only way to maintain any sort of budgetary discipline was to avoid a recession. It was for that reason that he believed a mildly restrictive monetary policy would contribute more to the creation of an environment for fiscal sobriety than the present severely restrictive policy" (*Minutes*, 1/15/1970, p. 51). Likewise, President Clay said: "Another serious handicap was the probable role of fiscal policy. Placing less reliance on monetary policy through a balanced monetary-fiscal approach would not only be more effective, but it would lessen some of the financial distortions and risks associated with the heavy reliance on monetary policy" (p. 72).

April 1974. Monetary policymakers remained actively focused on reducing inflation at least through August 1974. In July, for example, when FOMC Senior Economist Charles Partee described the projected path of real output as "an outcome which would appear to be unacceptable from a public policy point of view" and suggested "a temporary step-up in the target growth rate for M_1" (*Minutes*, 7/16/1974, pp. 22 and 31), the Committee disagreed emphatically. Numerous members, including Federal Reserve Chairman Arthur Burns and Federal Reserve Bank of New York President Alfred Hayes, said they viewed the projected output losses as acceptable to get inflation down and believed the public shared that view. Hayes "agreed with [an earlier speaker] that the public would be willing to accept slow growth in real output in order to achieve effective inflation control" (p. 27). He also "thought the battle against inflation might be entering a critical stage …. [A] monetary policy capable of bringing that fight to a successful conclusion would entail risks. It now appeared that it would be necessary to live with those risks for some time to come" (p. 55). Burns said that "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" (p. 34). And he agreed with the view of Hayes and others that there should be no change "in the degree of restraint at this time" (p. 59).

In August, the staff outlook implied that "the chances of avoiding a recession [had] become rather bleak" (*Minutes*, 8/20/1974, p. 17), with "negative real growth through much of the period" through the end of 1975 (p. 20). Similarly to his views in July, Partee "felt very strongly that the time had come to raise the longer-run targets for growth in the aggregates" (p. 54). The consensus of the Committee, however, was that it should "for the period until the next meeting continue its policy essentially without change" (p. 53). But there were beginning to be qualms. Federal Reserve Bank of Boston President Frank Morris was concerned that continuing with tight policy in the face of economic weakness would lead to "a wave of business failures next year larger than any witnessed since the 1930's" (p. 41), and thought "the projected real GNP probably represented the maximum sacrifice that was socially acceptable in the fight against inflation" (p. 70). Federal Reserve Bank of Minneapolis President Bruce MacLaury argued that "the deterioration in the outlook for real GNP—even though accompanied by prospects for a more rapid increase in prices than had been projected earlier—argued against [not changing policy]. The System ought to provide some sort of a signal that it was taking account of the weaker projections of real activity" (p. 64).

In September, the qualms were greater. Governor John Sheehan "felt that the greatest hazard concerning the present stance of monetary policy was that the decline in economic activity would go too far" (*Minutes*, 9/10/1974, p. 70); Governor Jeffrey Bucher judged that "the staff projections were beginning to suggest that the price—in terms of foregone output and employment—that would be paid for not having a little more patience in dealing with inflation was too high" (p. 75); Associate Economist Lyle Gramley "believed that the time had come to make a rather significant move toward easing monetary policy" (p. 67); and MacLaury "agreed with [Gramley's] policy prescription and with his rationale for it in terms of economic prospects" (p. 78). However, a large majority of the members were clear that because of their desire to reduce inflation, they preferred no real growth for an extended period to a strong recovery. For example, Burns sad that he "he would not wish to see a prompt recovery in economic activity. If recovery began promptly, economic activity would turn up at a time when inflation was continuing at a two digit rate" (p. 65).

By October, however, the Committee's focus had clearly shifted to mitigating the downturn. The reason for the shift was *not* that monetary policymakers believed they were on track to deal with inflation. On the contrary, there was general agreement that inflation remained a severe problem. Partee's comments about inflation included, "labor costs and prices are expected to continue climbing at a fast pace," "we do not see the basis for expecting any quick reduction in the rate of inflation," and "the outlook for inflation also remains distressingly poor" (*Minutes*, 10/14–15/1974, pp. 25, 27, and 28). Burns commented that "inflation was continuing at a two-digit rate. It remained a serious worldwide problem that threatened not only the economic system but social and political institutions as well" (p. 61).

Nonetheless, the outlook for the real economy received much more attention, with only a handful of members arguing for continuing to make disinflation the primary focus. One reason for the shift was simply that monetary policymakers thought the projected output losses were too large. Federal Reserve Bank of Dallas President Philip Coldwell, who was typically a strong advocate of focusing on disinflation, said that "the problem in the period ahead was to halt the decline in activity before it became too deep" (*Minutes*, 10/14–15/1974, p. 43). MacLaury "remarked that the prospective slack in the economy was counter-productive in that the decline in activity would be excessive in relation to its effect in reducing the rate of increase in prices" (p. 78). Similarly, Partee said, "The outlook for real economic activity is weak—too weak to be sustained for long without serious economic dislocations and unacceptable material and social costs. … [T]he additional weakness that appears now to be developing in the economy … is counter-productive …. It … will serve little purpose in further dampening inflationary forces" (p. 28). And of the Board of Governors Vice Chairman George Mitchell "was concerned about the possibility of the recession becoming serious," and said that "it appeared critical to attempt to bring long-term interest rates down to levels that would improve the effectiveness of the longer term markets for funds" (p. 66).

The other main argument for concentrating on mitigating the downturn was that a significant recession would produce an overreaction from fiscal policymakers. MacLaury cited the likelihood that the projected slack "would lead to a counteraction" as a second reason it would be counterproductive (*Minutes*, 10/14–15/1974, p. 78). Partee had the same view, saying that it "will create strong demands for remedial action" (p. 28). And 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" (p. 69).

Based on these considerations, Burns said that "a decision at this meeting to ease money market conditions somewhat further would be appropriate" (*Minutes*, 10/14–15/1974, p. 62), and the Committee adopted his suggested policy. The Committee did not entirely drop its concern about inflation, however. For example, Burns said that the continuing inflation meant that "monetary policy should remain moderately restrictive" (p. 62). Nonetheless, the decision drew a dissent from Federal Reserve Bank of Kansas City President George Clay, who was one of the few participants arguing for a continuing focus on inflation despite the output costs, saying that he "would like to get the full benefits of the policy course that the Committee had been following, even though he recognized that that course caused problems for some individuals and businesses" (p. 80). Consistent with the shift in focus, after many months when Burns had consistently cited inflation as the fundamental problem facing the economy in his public statements, in Congressional testimony in November he referred to "the twin economic problems plaguing us in 1974—namely, high rates of inflation and weakness in production" (Burns testimony, 11/27/1974, p. 2).

The behavior of the federal funds rate is also broadly consistent with our conclusion that the FOMC's focus shifted away from reducing inflation in roughly October 1974. The monthly average funds rate peaked at 12.92 percent in July 1974 and then fell steadily to 5.54 percent in March 1975. The fall from July through early September 1974 appears to have been a largely a tactical shift in response to a slowing economy and low growth of the money supply (and was in fact accompanied by a notable rise in the 3-month Treasury bill rate), with no backing off from the focus on bringing inflation down and being willing to accept output consequences to do so. The declines following the September and October FOMC meetings were still in considerable part responses to short-term developments, but they also reflected broader changes in the Committee's concerns. In September, despite not wanting a prompt recovery, Burns "believed that somewhat lower interest rates had become appropriate and truly desirable in view of the tensions existing in financial markets and of the dangerously depressed conditions in the stock exchanges" (*Minutes*, 9/10/1974, p. 65). And in October, he said that "a decision at this meeting to ease money market conditions somewhat further would be appropriate. Growth in the monetary aggregates had been sluggish in recent months; the home building industry was experiencing severe difficulties, … and security markets were not functioning as well as desired," though he added that "[i]t was important, however, that the Committee avoid easing policy too much" (*Minutes*, 10/14–15/1974, p. 62).

We therefore date the end of the anti-inflationary policy that began in April 1974 as occurring in October 1974.

August 1978. When policymakers shifted away from disinflationary policy in this episode is somewhat ambiguous because the federal funds rate never actually declined before the next disinflationary shock in October 1979. It did, however, clearly plateau. After rising sharply in the second half of 1978, the funds rate was roughly unchanged at 10 to 10¼ percent from roughly December 1978 through June 1979. This plateau occurred at the same time that inflation was widely understood to be rising. That policymakers did not respond to rising inflation suggests at the very least a significant weakening of the disinflationary policy sometime in this six-month period.

The March 1979 FOMC meeting is when the failure to respond to worsening inflation became most obvious. James Kichline, an Associate Economist, told the Committee: "In the staff's judgment, economic activity has moderated this quarter and will continue to slow, and the boom scenario appears a very unlikely outcome. Even so, near-term inflation prospects are dismal and the Administration's wage-price restraint program is in a great deal of difficulty" (Presentation materials, 3/20/1979, Kichline, p. 1). The staff forecast was for inflation (as measured by the gross business product deflator) to rise 8.75 percent over 1979 (p. 4). At the meeting, Federal Reserve Chairman G. William Miller reported that the flash estimate of the GDP deflator for 1979Q1 was

10 percent (*Transcript*, 3/20/1979, p. 8). FOMC Vice Chairman Paul Volcker said: "One doesn't have to speculate to see that inflation is a lot worse. In my view we'll be lucky if that Commerce figure stays at 10 percent for the first quarter when the final number comes out" (p. 10). A number of FOMC members said the worsening inflation called for further tightening. For example, Volcker said: "this is the time for some firming rather than the reverse. I think we are at a critical point in the inflation program, with the tide against us. If we don't show any response at all, we are giving an unfortunate signal in my judgment. I believe those concerned about inflation would find no response during this period almost inexplicable in terms of what we say regarding our worries about inflation" (p. 10). Likewise Federal Reserve Bank of Dallas President Philip Coldwell said: "From a policy standpoint, I think we have to balance some of the risks. Are we willing to risk a further surge in inflation, carrying it up beyond the 10 percent the Commerce Department is talking about in the first quarter and perhaps even up to a figure in the 15 percent area? I would view that [development] as perhaps one of the most debilitating to our entire economy of anything [that could happen]" (p. 22, bracketed material in the original). Governor Henry Wallich said: "I think if we fail to do something that recognizes the threat of greater inflation, we will really add to that inflation. A demonstration [of our anti-inflationary resolve] is needed (p. 23, bracketed material in the original). Nevertheless, the Committee voted to maintain the funds rate at its prevailing level and to raise the M1 target range slightly. The decision drew four dissents in favor of tighter policy.

This inaction in the face of worsening inflation was also clearly evident at the April 1979 FOMC meeting. In his presentation, Kichline said: "On the inflation side the outlook has deteriorated and we have made further upward adjustments to the forecast" (Presentation materials, 4/17/1979, Kichline, p. 3). Once again, Volcker called for more action. He said: "We talk about gradually decelerating the rate of inflation over a series of years. In fact, it has been accelerating over a series of years and hasn't yet shown any signs of reversing. … I still am of the view that some greater degree of restriction would be more appropriate than the reverse [and] more appropriate than standing still" (*Transcript*, 4/17/1979, p. 16). Coldwell concurred, saying: "I would point out to the Committee that we've had several months now of status quo and in that several months we've had at least a 3 percentage point increase in the inflation rate. And I can see some more if we don't act" (p. 17). Chairman Miller had a very difficult time getting a majority for any directive, but the majority finally agreed again on no change in the funds rate.

Monetary policymakers were clearly aware that holding the funds rate constant in the face of rising inflation was resulting in a fall in real interest rates. At the April 1979 FOMC meeting, Volcker said: "My observation would be that the expected rate of inflation has increased somewhat in the last six months and the nominal rate of interest has not. Therefore, the real rate of interest has declined …, so I think policy has probably gotten somewhat easier" (*Transcript*, 4/17/1979, p. 16). Likewise, in testimony to Congress at the end of February, Miller said: "Real interest rates—or market rates adjusted for inflation—still appear to remain low by historical standards and thus continue to facilitate an expansion of overall demands" (Miller testimony, 2/22/1979, p. 4). That policymakers understood that low and falling real interest rates were stimulating demand in this period is consistent with the view that policymakers had moved away from an active attempt to reduce inflation around this time.

Though a number of dates are plausible for the move away from active disinflationary policy, the most obvious month to date the switch is March 1979. This was when the discussion was most heated, and a core group of the FOMC argued further tightening was essential to continuing the disinflationary policy. The majority of the Committee, however, made a clear decision to not respond to worsening inflation.

Given the inflation data discussed at the FOMC meetings in the spring of 1979 and the staff's projections that inflation would rise over the next several quarters, it is clearly not the case that the disinflationary policy was weakened in March 1979 because policymakers' inflation goals had been met. Thus, this is a case of premature easing. However, it is a somewhat peculiar one because the easing came from an act of omission rather than commission. To understand the reason for the policy weakening, we need to identify why the majority chose not to respond to rising inflation.

One factor that may have played a role was that the Committee was watching the monetary aggregates closely, and money growth was below the FOMC's target. Stephen Axilrod, the FOMC's Economist, explained that the staff believed there had been a significant downward shift in the public's money demand at a given interest rate (*Transcript*, 3/20/1979, p. 5). He also indicated that bank credit growth had been very strong. Nevertheless, some members took the money growth numbers as a reason for easing (or at least for standing pat). Chairman Miller, for example, put the aggregates at the center of his support for not responding to inflation. He said (p. 25, bracketed material in the original):

> With all of that, my thought would be that the right posture now is one of seeking to [guide] the aggregates back toward our ranges, but not doing so with undue acceleration or signals of undue concern by moving too rapidly. I would be more patient for the reason that I think the economy is going to pursue its own course right now. Nor do I think we ought to start to send any particular signals of unusual tightening or monetary restraint because that wouldn't do much in the short term and in the long term it would work against our desire, if we believe in our own ranges and the objective of getting back inside the ranges. For that reason I would be inclined to take a moderate course of more or less even keeling where we are.

The reasoning of most of the other FOMC members who cited the monetary aggregates as an explanation for not tightening drew a line from the slow growth of the aggregates to fear that the economy was slowing. As discussed in Section II and Online Appendix B, policymakers in this episode put strict limits on how much output loss they were willing to accept to bring inflation down. In particular, they expressed a strong desire to avoid a genuine recession. The FOMC members who argued in favor of easing in March 1979 and after often cited recession concerns as a key reason. For example, Governor Charles Partee said: "So, I would have to say, looking at the real economy as well as the monetary numbers, that I now believe a recession is very likely--a recession which at this point the Federal Reserve will have done nothing about. We will have made no effort to block it in any way. We will have sat here again, seeing very weak monetary aggregates as a precedent to the recession phase. I believe we're in considerable danger of that happening" (*Transcript*, 3/20/1979, pp. 11–12). Similarly, David Eastburn, President of the Federal Reserve Bank of Philadelphia, said: "My own conclusion, even after all these adjustments one might want to make, is that the weak money supply is telling us that the economy is going to be weaker in the future, and that that would call for a different policy prescription" (p. 7). Federal Reserve Bank of St. Louis President Lawrence Roos concurred, saying: "if we look back in history, most of the postwar recessions that have occurred ... have been preceded by an abrupt reduction in the rate of money growth that has persisted for two or more quarters. ... So based on that analysis, which is not one to be taken lightly, I think if we're going to err, we should err at this time in the direction of moving toward slightly expanded growth in the monetary aggregates rather than anything of a restrictive nature" (p. 16). Frank Morris, President of the Federal Reserve Bank of Boston, was even more direct: "If it's our objective to avoid a recession, I think we have to move today; I don't think we can wait for another month" (p. 21). Thus, a key reason for the weakening of the anti-inflationary policy in 1979 was that the Committee feared that the output consequences were threating to surpass their low threshold for acceptable losses.[1]

A second reason for moving away from disinflationary policy cited in this episode was the belief that monetary policy had done all that it could to deal with inflation. Miller expressed this view at the April FOMC meeting. He said of the prices of food, energy, and housing, which were surging: "We're going to lower those by tightening. That makes no sense at all. We're going to lower them by bringing the economy down to a lower rate of growth and damping demand and letting that work itself through the system in the 6, 12, or 18 months that it always has taken" (*Transcript*, 4/17/1979, p. 24). Partee said something similar: "I think we really ought to be easing. It's past time. We've already gotten ourselves into considerable difficulty with respect to the behavior of the real economy. And I agree that there isn't much we can do to restrain the kind of inflation we have now other than to encourage moderate demand over the long pull" (p. 25). Balles also joined in, saying: "Intuitively, one is tempted, of course, to tamp a bit harder on the credit brakes because of the recent news on inflation. Having taken a good hard look at what we might get out of that, I doubt if an increase in the funds rate would really give us any quick fix. Certainly it wouldn't do anything that I can see in the foreseeable future to affect the things that have been especially important in [causing] the recent increase in prices--namely what has been going on in food and in oil" (p. 19, bracketed material in the original). This belief that monetary policy was unable to deal with some types of inflation on its own was in keeping with what policymakers said at the time that they initiated the disinflationary policy, and one reason that we identified their commitment to disinflation as low.

A third reason given by FOMC participants for not continuing to actively fight inflation was the fear that fiscal policymakers would adopt expansionary fiscal policy to counter Federal Reserve inaction. For example, in March 1979, Morris said: "But the issue is whether we will be better off in 1980 with a 7 percent unemployment rate or an 8 percent unemployment rate. I'm inclined to believe that in the long run we will be better off with a 7 percent unemployment rate simply because that is likely to be more conducive to the maintenance of the kind of conservative fiscal policies that are now being talked about in the Congress" (*Transcript*, 3/20/1979, p. 21). In April, Black said: "And as a matter of political reality, if the recession is more serious than it otherwise might be, I think the political system is such that we're likely to have the kind of fiscal policy fallout that will aggravate inflation rather than help" (*Transcript*, 4/17/79, p. 13). And, in a speech in early May 1979, Miller said: "Finally, in monetary policy, we've been endeavoring to accomplish this [dampening of inflationary forces] without throwing the economy into a serious tailspin, into a serious recession. Such a recession would automatically result in increased Federal deficits, would automatically result in pressures for additional Federal spending and would

[1] A few FOMC members expressed the hope that inflation would eventually fall at least somewhat even if policymakers took no additional action. Federal Reserve Bank of Sans Francisco John Balles said: "So we're going through that usual agonizing period when the bad news comes now in terms of the damping the economy and the good news comes later—perhaps as much as a year later—when monetary restraint begins to show through on the price front. The real danger at the moment, therefore, is overstaying restraint" (*Transcript*, 3/20/1979, p. 19). Robert Black, President of the Federal Reserve Bank of Richmond, said: "I think we probably will see some abatement in inflation as a result of the past slowing in the aggregates" (*Transcript*, 4/17/1979, p. 13). This may be another reason that these members, at least, were willing to move away from anti-inflationary policy.

automatically result in increased bias toward inflation which would start us off on a new treadmill and a new cycle the next time around" (Miller speech, 5/1/1979, p. 7).

October 1979. The behavior of the federal funds rate indicates a decided move toward ease in this episode starting in May 1980. Following the switch to disinflationary policy, the funds rate rose from 11.43 percent in September 1979 to 17.61 in April 1980. In May 1980, the funds rate fell to 10.98 percent; by July it was down to 9.03 percent. By any conventional standard, a fall in the funds rate of more than 8 percentage points suggests an abrupt move away from active disinflationary policy.

For policymakers at the time, however, the interpretation of their actions was less clearcut. A central component of the October 1979 disinflationary policy was a central focus on the growth rates of the monetary aggregates. Following the sharp rise in interest rates, as well as the imposition of credit controls in Mary 1980, both real output and money growth rates fell sharply. As Chairman Paul Volcker explained at the April 1980 FOMC meeting: "Let me say in connection with all of these confusing money figures and related numbers, that we took some actions in March that were unusual, to say the least, on consumer credit, on the voluntary program, on the money market funds, and all the rest. And we had interest rates at levels nobody ever saw before. I suspect this has led to some uncertainty and adjustments of a magnitude we can't quantify very well" (*Transcript*, 4/22/1980, p. 9). Because money growth was below target, some FOMC members believed the fall in interest rates did not indicate a move away from their disinflationary policy. For example, on a conference call in May 1980, Federal Reserve Bank of San Francisco President John Balles said: "I've written you a letter, which probably hasn't landed on your desk yet, hoping and urging that you would find an appropriate occasion to make a strong public statement as to why we have not resisted this decline of interest rates. [I'd urge you to say] that it does not mean we're [abandoning our] anti-inflation fight and to explain that it's to head off the unexpected and undesired absolute shrinking of the money supply" (*Transcript*, 5/6/1980, p. 2, bracketed material in the original). Volcker made just that case in a speech a week later, saying: "The sharp decline in interest rates has demonstrably reflected a fall in the demand for money and credit, not an increase in supply;" and "interest rates have not in any sense been "forced" lower—nor will they be at the expense of excessive growth in money and credit, at the risk of a resurgence in inflation and inflationary expectations" (Volcker speech, 5/14/1980, pp. 6 and 7). Lawrence Roos, President of the Federal Reserve Bank of St. Louis, concurred, saying: "As our Chairman has said repeatedly, as have others among us, accepting a reduction in interest rates in times like this should not be construed as an easing of monetary policy" (*Transcript*, 5/20/1980, p. 23).

Despite frequent claims that they were just sticking with their announced policy money targeting, a number of FOMC members seems to realize they were clearly easing at a time when inflation was still highly problematic. The clearest statements to this effect came from Governor Henry Wallich. At the April FOMC meeting, he said: "I think it is perfectly possible to convince the market that we are sticking to a fixed money supply policy. That doesn't mean that we are not engaging in a very stimulative policy at a time of recession; and "There may be very good reasons normally for stimulating strongly in a recession .... But in our present predicament, where we have to worry more about inflation than anything else, I don't think we can afford this remedy" (*Transcript*, 4/22/1980, pp. 11 and 12). He was even more forceful in May, when he said: "But these interest rates—not only internationally but domestically—convey an impression of a drastic shift in policy and create expectations that we're all for inflation as soon as we work out of this difficulty" (*Transcript*, 5/6/1980, p. 4). Governor Nancy Teeters, after describing the weakness in the economy said: "Probably it [the recession] will be both deep and long, the worst of all possible combinations. As a result, I think we should … be providing to the economy the sort of support that it needs at this particular point in time" (*Transcript*, 5/20/1980, p. 22). Similarly, Governor Frederick Schultz said: "I think the economy is weakening very rapidly and will turn down very sharply, and I want interest rates to come down" (p. 24).

The decision to let interest rates fall rapidly began at the April 22, 1980 FOMC meeting, and reached a peak on the conference call on May 6th and at the FOMC meeting on May 20th. For this reason, we date the weakening of the October 1979 disinflationary policy in May 1980—roughly 7 months after the start of the program.

A few FOMC members expressed the hope that they had succeeded in changing inflationary expectations by the spring of 1980. For example, Balles said: "I'm beginning to see encouraging signs, at least, that we've broken the back of inflationary expectations" (*Transcript*, 4/22/1980, p. 16). Similarly, Roger Guffey, President of the Federal Reserve Bank of Kansas City, spoke of "having come from a period when we've successfully—hopefully—killed off inflationary expectations" (p. 16). And the staff forecast predicted inflation would fall because of the recession; Kichline said: "we expect inflation to slow appreciably in the second half of this year and next in response to weak product and labor markets and the absence of another surge in oil prices" (Presentation materials, 5/20/1980, Kichline, p. 3). However, most participants clearly felt that inflation remained a serious problem. Schultz said: "I don't think we can seriously say that we're out of the woods on inflation" (*Transcript*, 5/20/1980, p. 24). Governor Rice concurred, saying: "I'd like to assure Governor Schultz that I'm still very much worried about inflation and hope that we will bring it under control" (p. 25). Federal Reserve Bank of Atlanta President Robert Forrestal said: "And I don't think we ought to be bullied into acting too quickly because inflation certainly is still a problem" (p. 25). FOMC Vice Chairman Anthony Solomon said: "There is nobody who assumes that the rate of inflation is going to be below 10 percent even by the end of the year" (p. 26). Volcker agreed that inflation was still a severe problem: "And we have the risk of inflation that Fred Schultz talked of eloquently. That's not a risk; it's here" (p. 28). In a speech in May 1980, Volcker put a number on his inflation prediction. He said: "In my judgment, a more balanced view suggests there is indeed a reasonable prospect for a decline in the inflation rate to or below 10 percent before the year is out" (Volcker speech, 5/14/1980, p. 9). Given the clear sense that inflation remained at an unacceptable level, this is another case of premature easing. Thus, it is important to examine the source of the policy change.

As described above, one unusual motivation in this episode was the new operating procedure adopted on October 6, 1979. A number of FOMC members cited the below-target growth of the monetary aggregates as a reason for letting the federal funds rate fall. For example, Balles said: "It certainly took a great deal of courage for this Committee to let interest rates rise to these extraordinary levels that we've seen, and I think that was the right thing to do. … I think we should be equally courageous on the other side, while sticking to our monetary targets. If that implies that interest rates are going to decline, that doesn't bother me one bit" (*Transcript*, 4/22/1980, pp. 15–16). Similarly, Mark Willes, President of the Federal Reserve Bank of Minneapolis, said: "it seems to us that the decision we made last fall was a wise one and we ought to stick to it. … So, as others have said, if interest rates are going to go down, I think this is one time when we just ought to let them go down because we've got to make sure that we establish the credibility in the basic policy thrust that we've been following" (pp. 19–20). Robert Mayo, President of the Federal Reserve Bank of Chicago, said: "We should be getting back on target or we will have a credibility problem again" (*Transcript*, 5/20/1980, p. 21). Federal Reserve Bank of

Dallas Ernest Baughman agreed, saying: "On the monetary policy issue, it seems to me that the risks are on the side of a fairly extended period of [money growth] running well below target and that, therefore, we should move fairly quickly and fairly decisively to try to get back within our announced target ranges" (p. 22). And Roos, a strong monetarist, said: "I think not only is the credibility of our October 6 program at stake, but the very credibility of the Open Market Committee is at stake in terms of whether or not we perform what we've said we were going to accomplish" (p. 23).

Even a number of members who were uneasy about the clear easing of policy felt it was important to be seen as following the new operating framework. Their goal, however, was to make the interest rate declines more gradual and less extreme. For example, Guffey said: "If we move into the May-June period when things are very weak, … and people are wondering what is going to happen and they see interest rates drop not to the 13 percent level implied by alternative B but maybe to 10 percent, then we may lose all that we've gained over the last 60 days by going to a 20 percent prime rate or a 19 percent federal funds rate. Thus, I think this Committee does have a responsibility to moderate [the movement of interest rates] on the down side" (*Transcript*, 4/22/1980, p. 16). Likewise, Solomon said: "And I would hope that everybody feels as well that we want to retain the perception that the Fed is not changing its policy [of fighting inflation]. So it's really important to show a sense of prudence and gradualism in this [so as] not to precipitate further sharp declines in the market rates by people seeing us move so abruptly to a level as low as 10 percent" (*Transcript*, 5/6/1980, p. 4, bracketed material in the original). And Schultz said: "If we move too rapidly, that could have some very serious attitudinal effects [on the] psychology of inflationary expectations and could subvert [any progress we've made in that area]" (*Transcript*, 5/20/1980, p. 24, brackets material in the original).

The other main motivation for the move away from active disinflationary policy was concern that the output losses would be very large. As discussed in the text and Online Appendix B, policymakers in this episode were willing to accept significant output losses to bring inflation down. That is a key reason we score their commitment to disinflation in this episode as very high. However, the output losses that policymakers saw and feared in the spring of 1980 appear to have surpassed even this high acceptable level.

The FOMC staff forecast for the April 1980 FOMC meeting was quite dire. Kichline said: "The staff forecast contains a fairly severe recession, which persists longer than usual and is followed by a weak recovery" (Presentation materials, 4/22/1980, Kichline, p. 3). The Greenbook for the meeting said that "Real GNP is projected to continue moving down through the first half of 1981. Activity is expected to fall 3-3/4 percent from peak to trough—more than in the typical postwar recession (Greenbook, 4/22/1980, p. I-4). Likewise at the May FOMC meeting, Kichline said: "Information on economic developments early in this quarter suggests activity is contracting substantially. The staff has revised downward its forecast of real GNP for the second quarter, and now anticipates a decline of around 6 percent at an annual rate" (Presentation materials, 5/20/1980, Kichline, p. 1). Thus, FOMC members would have been justified in believing that a severe and prolonged recession was in store.

A number of members expressed the view that the grim outlook justified a rapid fall in interest rates. At the April meeting, Federal Reserve Bank of Boston President Frank Morris said: "Rather than viewing lower rates as stimulative, as Henry does, I would view them as a force for mitigating the severity of the recession, because there is no question that we are in for a very sharp decline. The issue is: Do we want a monetary policy that is going to make the recession, if anything, sharper, steeper and longer than the staff has forecast?" (*Transcript*, 4/22/1980, p. 13). On a conference call in late April, Governor Charles Partee said: "So I think there is a fair chance that this money supply [behavior] is telling us that we're now entering into the sharpest phase of recession we've seen any time since World War II. And if that is the case, to maintain interest rates [at their current high levels] and thereby destroy the reserves necessary to support reasonable monetary growth is a grossly wrong policy for the Board or the FOMC to follow" (*Transcript*, 4/29/1980, p. 4). At the May FOMC meeting, David Eastburn, President of the Federal Reserve Bank of Philadelphia, said: "I tend to be at least as pessimistic as the projections. There's one other factor that could enter in and I wonder if you have explored it, Jim. And that is the [potential] catastrophic aspects of this, with large numbers of bankruptcies both in the nonfinancial and financial side--in municipal finances and so on if they accumulate" (*Transcript*, 5/20/1980, p. 14, bracketed material in the original). Eastburn advocated that they follow a policy that would get money growth back to path more rapidly (p. 18). Volcker also expressed significant concern about the real economy. He said: "The obvious risk is the presence of recession, and when that [occurs] one always has the feeling of being in a bottomless period. Indeed, there is a certain degree of risk that we are in a more bottomless period than we would expect or like to be in" (p. 28, bracketed material in the original). Volcker proposed lowering the bottom range for the funds rate to 9 percent. The Committee ultimately agreed to lower the limit ½ percentage point below that.

May 1981. The second Volcker-era disinflationary shock was followed quickly by a severe recession. Monetary policymakers nevertheless stuck with their disinflationary policy for the next year. In May 1982, we find the first obvious cracks in their anti-inflation resolve. The move away from disinflationary policy became more pronounced in the summer of 1982, and by October 1982, it was clear that the policy focus had changed toward expansion and recession fighting.

This gradual change away from disinflationary policy is evident in the behavior of the federal funds rate. The funds rate surged right around the start of the disinflation program—peaking at 19.1 percent in June 1981. It then drifted down gradually over the next six months, before stabilizing at around 14 to 15 percent in the first half of 1982. In July 1982, the funds rate fell to 12.59 percent, and in October it hit 9.71 percent. It then fluctuated between 8 and 9 percent through June 1983.

Some of the clearest expressions of a desire to move away from active inflation fighting occurred at the May 1982 FOMC meeting. The meeting was a somewhat chaotic one because a financial firm was in distress, and Chairman Volcker kept leaving the room to take calls about the matter. This drama may have exacerbated some of the concerns about financial fragility that had been brewing. Governor Lyle Gramley was one of the most emotional voices. He said: "We cannot let devotion to a predetermined path of reserve growth or money growth permit us to commit a major crime against the U.S. economy. It just can't be done" (*Transcript*, 5/18/1982, p. 5). Federal Reserve Bank of Philadelphia President Edward Boehne concurred, saying: "Well, as Chuck [Partee] said, we have been putting the economy through hell. I think maybe a drop of water would be helpful to those poor souls in hell at this point! So, in my view, we've reached the point where we ought to put some downward pressure on rates" (p. 28). Frank Morris, President of the Federal Reserve Bank of Boston, argued that: "our ability to forecast the economy is pretty limited in this unprecedented period and that, therefore, a pragmatic case can be made for erring a bit on the side of ease at this juncture" (p. 29). Despite these and other statements in support of easing, the actual change in policy at this meeting was extremely muted. Volcker suggested "easing the pressures on bank reserve positions" somewhat, but waiting before taking more aggressive measures that would have a significant effect on the funds rate (p. 34).

At the FOMC meeting in July 1982, policymakers again talked of a desire to move away from active disinflationary policy. For example, Federal Reserve Bank of San Francisco President John Balles said: "I'm tempted to follow the same strategy that Ed [Boehne] has already mentioned … and have a temporary easing of our monetary targets" (*Transcript*, 6/30 –7/1/1982, p. 5). Governor Emmett Rice said: "the basic problem … is: How do we get interest rates down?" His policy recommendation was to "stick with the current targets but allow ourselves the flexibility to come in above these targets—and in my judgment, considerably above these targets—if necessary" (p. 21). Governor Nancy Teeters, a more dovish member, said: "Well, I want to get interest rates down. I'm not worrying about them going up, because I think that's intolerable. Therefore, I would move toward what Pres and Chuck have said but a little more strongly" (p. 46). William Ford, President of the Federal Reserve Bank of Atlanta, one of the more hawkish members, confirmed a noticeable change in the desired policy, saying: "Well, I sense a rather interesting shift in the perspective of the Committee. … I certainly am not a fan of high interest rates, but I very strongly oppose any shift in policy toward putting on a maximum rate cap, particularly the notion that a number of people who have already spoken have expressed of setting a rate cap at or below the present level" (p. 47). Federal Reserve Bank of New York President Anthony Solomon agreed there had been a noticeable change in the discussion. He said: "Well, let me say first that this is the strangest FOMC meeting I've attended. There seems to be a whole change or shift in mood. … But during the depth of the recession there was a much tougher attitude than I hear today. I don't know what is bringing about this change, although I share in that view, as indicated by my remarks yesterday" (p. 52). Following Volcker's suggestion, the Committee left the directive largely the same as it had been in May, but with an understanding that they would tolerate money growth above the top of the target ranges, and would strongly resist any movement in the funds rate in an upward direction (p. 58).

The discussion at the August FOMC meeting and on a conference call in September was somewhat different. Volcker was very concerned about interest rate volatility. In August, he said: "I, frankly, cannot live in these circumstances, given what is going on in the money markets, with violent moves in short-term rates in either direction. It would just be so disturbing in terms of expectations, market psychology, and fragility that it's just the wrong policy, period, during this particular period" (*Transcript*, 8/24/1982, p. 29). Other members were somewhat cantankerous. They voted to widen the funds rate range slightly relative to Volcker's recommendation, and refused to add concern about volatility to the directive (p. 41). On the September conference call, Volcker said: "we should not follow—and I would not intend to—a mechanical application of those reserve provisions but rather stabilize market conditions somewhere close to where they are presently or even slightly below where they have been in the last couple of weeks" (*Transcript*, 9/24/1982, p. 1). Some Committee members pushed back on his proposal. For example, Robert Black, President of the Federal Reserve Bank of Richmond, said: "It looks to me as if it's moving in the wrong direction, really" (p. 5). Volcker shot back: "Oh, now you're talking about risks. Let me leave no doubt. I see it as extremely negative in terms of actually precipitating a change in the interest rate quiescence that we have at the moment. Precisely what level of borrowings produces that I do not know. But I'm quite confident about what direction the risks lie in" (p. 5). The Committee did not take a formal vote.

At the October 1982 FOMC meeting, the desire to move away from disinflation was widespread and very strong. Volcker said: "Domestically, I would simply say that I don't think this is any time for taking any great chances. There is a substantive need for a relaxation of pressures in the private markets in the United States. How best to achieve that seems to me is the question before the house" (*Transcript*, 10/5/1982, p. 19). Boehne said: "this is not business as usual. I think we have to take our chances on the side of discretion, which tells me that at a minimum we cannot have higher rates in these circumstances; and if we can get lower rates, that's fine" (p. 43. Silas Keehn, President of the Federal Reserve Bank of Chicago said: "I certainly am in the camp that thinks that we simply must bring rates down" (p. 44). Rice agreed, saying: "we should do what we reasonably can to get interest rates moving down" (p. 44). And Solomon said: "On substance, I feel that we absolutely have to have some modest decline in rates. I believe there is a real danger of a major cracking and then we would have to go even farther; whereas with a modest decline now that stays in place for a while there is a better chance of working ourselves out of this both internationally and at home" (p. 49). The directive called for essentially ignoring M1 (which was behaving erratically), and for growth in the other aggregates above the tops of their ranges ("Record of Policy Actions," 10/5/1982, p. 12).

Assigning a specific date to the end of clear disinflationary policy in this episode is difficult. It could be as early as May 1982 or as late as October 1982. Given that the largest falls in the funds rate occurred following the July 1982 FOMC meeting, we choose that as the obvious compromise date.

Policymakers certainly felt that they had made significant progress on inflation. The staff presentation materials for the May 1982 meeting said: "we seem to be on track for a GNP deflator increase of under 6 percent this year, more than 3 percentage points below the rate last year" (Presentation materials, 5/18/1982, Kichline, p. 4). Rice said: "I think it is obvious in the present situation that we have made a good deal of progress toward reducing inflation and that we've made enough progress so that we can now look around and survey the damage that has been done to the economy. It's also time, I think, to see what we can do to allow the economy to repair some of this damage" (*Transcript*, 5/18/1982, p. 19). Lawrence Roos, President of the Federal Reserve Bank of St. Louis said sarcastically that the supposedly failed monetary policy of the last few years "has gotten us from those glorious double-digit inflation days that apparently some enjoyed a few years ago to inflation at a tolerable rate" (p. 30). Federal Reserve Bank of New York Vice President Thomas Timlen said: "We all recognize that the country has had some success in its war against inflation" (p. 32).

This sense of at least partial success continued at subsequent meetings. For example, at the July 1982 FOMC meeting, Roger Guffey, President of the Federal Reserve Bank of Kansas City, said: "We have achieved some good on the price side" (*Transcript*, 6/30–7/1/1982, p. 12). At the October 1982 FOMC meeting, the FOMC Economist said: "The silver lining in all of this is on the wage-price side where there continues to be considerable progress. Given the substantial slack in labor and product markets, abundant harvests, and well behaved oil prices, the chances of seeing further progress in slowing inflation next year are very good (Presentation materials, 10/5/1982, Kichline, p. 4).

Volcker also expressed considerable satisfaction with the progress on inflation. In his Humphrey-Hawkins testimony in July 1982, he said: "In these past two years we have traveled a considerable way toward reversing the inflationary trend of the previous decade or more," and "In fact, the evidence now seems to me strong that the inflationary tide has turned in a fundamental way" (Volcker testimony, 7/20/1982, pp. 1 and 2). At a press conference in October 1982, he sounded even more confident, saying: "Let me say I am encouraged. I've said it on a number of occasions that I think the inflationary momentum that has come to grip the economy in the 60's and the 70's has been broken, and I do think the prospects are good for some further reductions; that we can build up a momentum toward price stability" (Volcker press conference, 10/9/1982, p. 2). And in a speech in November, he said: "We are still some distance from price stability. But I do believe we can now fairly claim the insidious upward momentum of inflation has been broken. I judge that not simply by the fact that the common indices of inflation this year have been running at a third to a half of their earlier peak levels. I believe we also see signs that the hardened skepticism of financial markets and the public at large about our ability to deal with inflation … is beginning to yield" (Volcker speech, 11/16/1982, p. 4).

Despite the upbeat tone, it seems implausible that policymakers stopped the disinflation program simply because they felt they had reached their inflation goal. First, inflation was objectively still elevated. The GDP implicit price deflator was hovering around 5 to 6 percent in the summer and early fall of 1982. Second, their words tended to emphasize "some success" and a "tolerable" level of inflation—not outright victory. Gramley was even more clear; he said: "We have made a lot of progress against inflation but I don't think the battle is over yet by any means" (*Transcript*, 5/18/1982, p. 31). Third, in testimony in late July 1982, Volcker took pains to say that more work remained on inflation. He said (Volcker testimony, 7/20/1982, p. 17):

> The hard fact remains that we cannot escape those dilemmas by a decision to give up the fight on inflation—by declaring the battle won before it is. Such an approach would be transparently clear—not just to you and me—but to the investors, the businessmen and the workers who would, once again, find their suspicions confirmed that they had better prepare to live with inflation, and try to keep ahead of it. The reactions in financial markets and other sectors of the economy would, in the end, aggravate our problems, not eliminate them. It would strike me as the cruelest blow of all to the millions who have felt the pain of recession directly to suggest, in effect, it was all in vain.

Thus, this episode, like many others, involved at least an element of premature ending of disinflationary policy.

The overarching reason for moving away from active disinflationary policy before inflation was fully down to their goal in this episode was acute concern about the economy and financial stability. As discussed in the text and Online Appendix B, monetary policymakers in this episode were willing to accept substantial output costs to bring inflation down. However, after a year of severe recession, and fear that financial instability could cause even larger output losses going forward, policymakers decided that the output costs had finally surpassed their high threshold for weakening the disinflationary policy.

This was an emerging view at the May 1982 FOMC meeting. Gramley said: "We are looking at an economy that the latest Redbook suggests is teetering on the brink of going over the edge. Attitudes are very, very pessimistic. There are lots of very worried people out there. Add to this atmosphere a financial crisis, and there's just no question in my mind that that is the factor that will push us over the edge. We can't afford to [allow] that" (*Transcript*, 5/18/1982, p. 5). This led to Gramley's policy recommendation that "it's time to let the economy grow at a restrained pace and still make progress against inflation" (p. 31). Governor Nancy Teeters said: "So, it seems to me pretty obvious when one looks at the economic projection, which I don't disagree with, that we are in the process of just pushing the whole economy not just into recession, but into depression" (p. 27). Her policy recommendation could not have been clearer: "as far as I'm concerned, I've had it with the monetary experiment. It's time to put this economy back together again. … I think it's time to relax [policy] and to reliquify the economy. It's time to permit corporations to fund their securities loans. It's time just to say we are finished one job and to start the next one." (p. 27, bracketed material in the original). And Governor Charles Partee said: "the recession in 1929 didn't look too bad for the first 9 or 10 months; one might reasonably have thought after that period that the economy was going to recover and would be all right. But there was a second-tier decline. And that was much sharper and it occurred because of financial collapse. So, if we really do have a crisis here with this firm, or if a crisis developed that tested the very financial fabric of the economy, I think we would have to deal with that" (pp. 23–24). He supported faster money growth and a lower bottom for the funds rate range (p. 35).

At the July meeting, the staff was beginning to sound more sanguine about the outlook. Joseph Zeisel, an Associate Economist, said: "There have been some persuasive indications recently that the contraction is drawing to a close, although few signs as yet of significant recovery" (Presentation materials, 6/30–7/1/1982, Zeisel, p. 1). But many FOMC members challenged that view and expressed greater concern about the economy. For example, Balles said of businessmen and bankers in his district: "They are more worried than I've seen them worried in my adult life about the spreading risks of bankruptcies for a great number of institutions that they would not normally consider being on a problem list" (Transcript, 6/30–7/1/1982, pp. 4–5). As discussed above, he favored an easing of the monetary targets. Volcker agreed, saying; "Everybody talks about the risks on the down side and I agree that the biggest risks are clearly on the down side;" but he cautioned that "I don't think we can discount the possibility that the economy might do better than we're talking about" (p. 33). Vice Chairman of the Board of Governors, Preston Martin, said: "The reasons for my position with regard to the upper limit of the target came out, as was obvious to all of us, in the discussion yesterday. It is the downside risk; it is the unusually high degree of uncertainty; it is the peril that corporations and financial institutions confront; it is the great uncertainty of the international situation added to all of these" (p. 43). And Partee said: "The thing that we do know, though, is that the economy can't stand higher interest rates because the financial fabric of the country just won't tolerate higher rates in this environment or the environment one can see in the reasonably foreseeable future" (p. 44).

At the August FOMC meeting, there was much discussion of debt problems in Mexico and other Latin American countries, and a proposal to help Mexico with short-term funding. Volcker said: "We're in a very sensitive period, not just economically, but in terms of the markets and interpretations and in fact concern—and I'm afraid to some degree justified concern—about the stability of the banking system" (*Transcript*, 8/24/1982, p. 18). His primary concern was to tamp down interest rate volatility with a narrow range for the funds rate (p. 29), but the majority of the Committee modified his proposal somewhat. On the conference call in September, Volcker again sounded grim. He said: "In terms of the general background, my own conclusion … is that it is clear that any sense of economic expansion has been delayed. … Investment is declining and is going to decline for some time. The atmosphere, if anything, seems to be weakening, and survey data seem to show a weakening" (*Transcript*, 9/24/1982, p. 1). He continued: The problems of Mexico have in no way cleared up; the problems of the rest of Latin America are clearly being compounded by a general economic slowdown and recession; … The weaknesses in the financial system remain very evident both internationally and domestically" (p. 1). His implication for policy was that "this is a situation in which I would not find a mechanical application of the reserve provision rules suitable, given the certainty that that would lead to a decided change on the tightening side from recent money market conditions" (p. 1). Gramley concurred that any tightening would be dangerous, saying: "My perception is that Wall Street now has a view that interest rates simply can't go up because the economy is sick, sick, sick. So, if we started any operation that began to push interest rates up by reacting strongly to an overrun on M1 now, that would be the worst possible thing we could do" (p. 6).

Concern about the economy hit a fever pitch at the October FOMC meeting. Volcker said: "We are in a worldwide recession. I don't think there's any doubt about that" (*Transcript*, 10/5/1982, p. 15). He also expressed concerns about U.S. banks, saying: "this leads to a considerable feeling in financial markets and elsewhere of developing disarray, a certain floundering. And that in itself contributes to uncertainty, which feeds upon itself. And it is dangerous in and of itself" (p. 18). He went on to say: "I would like not to neglect the international situation with respect to some of these countries. This is not a time, as I undoubtedly implied—that's a mild word—for business as usual, certainly, in the international area. I don't think it's time for business as usual in the domestic area either. Extraordinary things may have to be done. We haven't had a parallel to this situation historically except to the extent 1929 was a parallel" (p. 19). Morris said: "There is a feeling of apprehension, a vague apprehension that maybe things are going to get out of hand" (p. 25). Rice said: "And the longer the economy stays in the doldrums, the greater the risk and the greater the dangers. In your words, the developing disarray feeds upon itself, and until we see some evidence of a turnaround, I think we're in a very vulnerable situation. So, in this environment, we should not do anything that risks rising interest rates; on the contrary, we should do what we reasonably can to get interest rates moving down" (p. 44). Solomon also supported lowering rates because of the state of the economy, saying: "I believe there is a real danger of a major cracking and then we would have to go even farther; whereas with a modest decline now that stays in place for a while there is a better chance of working ourselves out of this both internationally and at home" (p. 49). Finally, Volcker summed up the situation very well, saying: "following a mechanical operation because we think that's vital to credibility and driving the economy into the ground isn't exactly my version of how to maintain credibility over time. Credibility in some sense is there to be spent when we think it's necessary to spend it and we can carry through a change in approach" (p. 50).

December 1988. The disinflationary episode that we date as beginning in December 1988 was characterized by fairly modest movements in the federal funds rate. The funds rate had been brought down about a percentage point following the October 1987 stock market crash. That decline had been allowed to reverse over the spring and summer of 1988. Then, in the ramp up to the decision to disinflate, the funds rate had risen another percentage point in the fall of 1988. Following the December decision, rates were quickly raised another percentage point—peaking at 9.85 percent in March 1989. The funds rate began to decline in June 1989, with the largest decline in July 1989. It then drifted down further over the next year. The narrative record agrees that a noticeable weakening of the disinflationary policy began in the summer of 1989.

At the May 1989 FOMC meeting, both the FOMC staff and members saw the economy cooling. The staff forecast, which was predicated on additional increases in interest rates, was "very close to recession … in the first part of 1990" (*Transcript*, 5/16/1989, p. 14). Chairman Alan Greenspan summarized the discussion of the outlook, saying: "there is a fairly central tendency in this group's evaluation, which says in a sense that the economy clearly has slowed and probably will stabilize without going into a recession. I think the evidence at this stage is fairly solid on that conclusion but probably needs to be audited with some degree of sensitivity" (p. 38). For the most part, members were content with that development. For example, Governor Manuel Johnson said: "I'd like to associate myself with those people who generally view the current environment as satisfactory. The evidence clearly is showing a slowing in economic activity. In my opinion it has gone beyond the stage where this might be a temporary situation. I think it is [likely to be] sustained. And I think the slowdown in domestic demand or consumer spending is a desirable feature that we've been looking for" (p. 28, bracketed material in the original). E. Gerald Corrigan, President of the Federal Reserve Bank of New York, said: "Having said that the outlook in Mike's forecast in some ways is about as good as one can hope for, I think it's worthwhile to then ask: Where does that leave us? … Well, even in Mike's forecast the underlying inflation rate is still 5 percent, maybe a shade higher" (p. 25). His implicit view that inflation was still higher than desired was said explicitly by Federal Reserve Bank of Cleveland W. Lee Hoskins, who said: "I don't think I can contribute much to what has been said here already other than to say that the long-term objective ought to remain consistent, and that is to bring down the rate of inflation" (p. 46). Thomas Melzer, President of the Federal Reserve Bank of St. Louis, also worried about inflation, but nevertheless wanted to ease. He said: "Now, I continue to think that the major problem we face is inflation. But I don't think it's going to be any easier to deal with if we destabilize the economy through a monetary policy that's too tight" (p. 45). At Greenspan's suggestion, the Committee voted for no change in the funds rate, but a move in the directive from asymmetry toward tightening, to symmetric.

On a conference call two weeks later, Greenspan said: "I personally am concerned about what in fact is going on out there. People to whom I'm talking are indicating to me for the first time a degree of softness, especially on the price side" (*Transcript*, 5/31/1989, p. 1). There was also concern that the money growth numbers are coming in very low. For example, Hoskins said: "Inflation is too high and I don't think that it's coming down. Nevertheless, having said that, I have more serious concerns now than previously about the rate of monetary growth" (p. 1). Many members wanted to ease, but four did not. Greenspan, desiring consensus, suggested waiting a few days for the employment report to come out (p. 1).

Soon after the May employment report came out, the FOMC reduced the funds rate ¼ percentage point. Greenspan was emphatic that it was the report of slowing wage inflation that most influenced his thinking. He said (*Transcript*, 6/5/1989, p. 2):

> As I indicated last week, I was concerned about how the data would come out on Friday's employment report—if they would show no contrary evidence to what was beginning to emerge very clearly as a significant defusing of inflationary pressures. Increasingly, as I look at commodity prices, and especially wages, I would be inclined to request the Desk to bring down the borrowing requirement a notch. I've concluded—looking at the data and thinking about it considerably over the weekend—that that is the appropriate thing to do. Hence, consistent with the directive, I am requesting the Desk to move the borrowing objective from $600 million down to $500 million; and I expect that to be consistent with a funds rate of about 9-1/2 to 9-5/8 percent.

J. Roger Guffey, President of the Federal Reserve Bank of Kansas City, pushed back a little, saying: "I don't really understand the urgency of moving at this time given the uncertainty about inflation and the uncertainty about the strength of the economy generally. It still isn't clear to me that we're in anything other than a pause" (pp. 2–3). Greenspan responded: "My major concerns are (1) the money supply data and (2) evidence that is emerging that the commodity price inflation is beginning to subdue" (p. 3). Whether Greenspan took slowing inflation as an indicator of a slowing economy, or a sign that he thought the Committee had achieved its inflation goal, is impossible to tell from the narrative record. President of the Federal Reserve Bank of San Francisco Robert Parry conveyed a sense that he felt the current inflation rate was not acceptable, saying: "If we were to make the change that you've suggested, perhaps at some convenient opportunity you could underline the concerns that we all have about gradually reducing the rate of inflation over the longer term. I think it would be a very desirable way to go" (p. 3).

At the July 1989 FOMC meeting, the tenor of the discussion changed noticeably toward general concern about the economy. Governor Martha Seger summed up the discussion this way: "I've been sitting here thinking that I need a new hearing aid because I can't believe the change in the comments today versus the FOMC meeting in May or, for sure, the one in March. Either I needed the new one then and not now, or vice versa. Anyway, as you know, I've been somewhat concerned about the slowing economy for a fair while. So, it is nice to have some other people who are on board with the same concerns" (*Transcript*, 7/5–6/1989, 30). Federal Reserve Bank of Philadelphia Edward Boehne said: "Looking at the national economy we can't help but be influenced by the people who surround us, and I think the outlook nationally is still most likely to be a soft landing. But the chances of a bumpier landing have increased" (p. 16). Governor Edward Kelley picked up on another member's concerns about the financial system, saying: "But one word that I think was in his remarks bears some emphasis, and that's the fragility of this situation. However you assess the risks, it seems to me that the fragility on the down side is quite substantial and should be recognized as an element therein" (p. 30).

Importantly, many members continued to express concern about inflation. Hoskins said: "Listening to the discussion, I hear a lot of words about long-term price stability objectives. I could have heard the same thing last year when I sat here. The inflation rate is still up there; it's probably higher than it was last year at this time" (*Transcript*, 7/5–6/1989, p. 41). Corrigan said: "it still, as I said earlier, is not clear to me that the inflation rate necessarily has stopped rising—and even if it has, I think we still could get a couple of months of lousy numbers" (p. 50). Greenspan summarized the Committee's view, saying: "A lot of issues have been raised here, and I think it's very clear that without exception they are all focusing on some way to eventually bring the inflation rate down significantly below where it is" (p. 43). Thus, it does not seem to be the case that the Committee felt it had achieved its inflation goal.

Nevertheless, Greenspan proposed, and the Committee agreed, to a reduction in the funds rate of another ¼ percentage point. The reason was concern about what most people saw as a relatively mild slowdown in the economy. For example, Governor John LaWare said: "I think that in spite of the risk of not achieving further progress on inflation immediately, the effects of a significant recession—if that's what we've tipped into—could be even greater. I'm not at all satisfied that we even have to be in what is technically a recession in order to have significant changes in business plans and significant consequences in the areas that I'm talking about" (*Transcript*, 7/5–6/1989, pp. 24–25). Robert Forrestal, President of the Federal Reserve Bank of Atlanta, said: "I think we have pretty well gotten the results we wanted—that is, in the sense that we have brought the economy down to a more sustainable level of performance. Unfortunately, inflation is still at too high a level. ... So, I think your prescription is the right one" (p. 50). Greenspan both made it clear they were easing, and expressed a desired to move cautiously. He said: "I'm concerned that the worst thing that can happen to us, as far as policy is concerned, is that we are perceived to be easing too fast and in a manner which would open up the possibilities of inflationary expectations" (pp. 48–49). Corrigan concurred, saying: "I at least am prepared to run some risk of an economy that is on the slow side for some period. But I think the thrust of your prescription is precisely right" (p. 50). His reference to the "slow side" suggests that he supported easing despite his perception that the output loss would be fairly mild.

The notion that the FOMC was weakening its disinflationary policy in July 1989 is confirmed by Greenspan's Humphrey-Hawkins testimony two weeks later. He said: "By the beginning of the second quarter, the outlook for spending and prices was becoming more mixed. Scattered indications of an emerging softening in economic activity began to appear;" and "Against this background, the Federal Reserve eased reserve conditions, first in early June and again in early July" (Greenspan testimony, 7/20/1989, pp. 2–3). At the same time, inflation clearly remained above the Federal Reserve's desired level. Greenspan told Congress: "recent developments suggest that the balance of risks may have shifted somewhat away from greater inflation. Even so, inflation remains high—clearly above our objective" (p. 8). He also reported that "The outlook for inflation this year, as reflected in the central tendency of the projections expressed at the FOMC meeting, is for a 5 to 5-1/2 percent increase in the consumer price index. A figure in this range would represent the highest annual inflation rate in the United States since 1981; this is a source of concern to the Federal Reserve" (p. 12). Greenspan said "Consequently, monetary policy will need to continue to focus on laying the groundwork for gradual progress toward price stability. Such an outcome need not imply a marked downturn in the economy, and policy will have to be alert to any emerging indications of a cumulative weakening of activity"—suggesting that the Federal Reserve was unlikely to tolerate more than mild output losses (p. 8). This view was reiterated toward the close of his testimony, when he said: "We also recognize, however, that a degree of slack in labor and product markets will ease the inflationary pressures that have built up. So our policy, under current circumstances, is not oriented toward avoiding a slowdown in demand, for a slowing from the unsustainable rates of 1987 and 1988 is probably unavoidable. Rather what we seek to avoid is an unnecessary and destructive recession" (pp. 15–16).

On a conference call at the end of July, Greenspan said (*Transcript*, 7/26/1989, p. 1):

> On the issue of monetary policy: As a result of data we have just gotten recently, which I'll mention in a moment, the Desk has been instructed to lower the borrowing requirement from $600 million to $550 million, which is equivalent to moving the funds rate from around 9-1/4 to 9-3/8 percent down to the 9 to 9-1/8 percent area. The two most recent indications of continued softening [in the economy] are: (1) the initial claims figures, which will be released tomorrow; and (2) information from the purchasing managers' survey.

He did, however, point out that there had been improvement in existing home sales and an acceleration in money growth (p. 1). He therefore concluded that, "having made this move, we should probably stay put for a while until we see how the money supply works out and how a number of other elements within the economy continue to move" (p. 1).

Taken together, the narrative evidence from this episode indicates that the disinflationary policy was weakened substantially in the summer of 1989—despite the fact that most FOMC members (including the chairman) found the current rate of inflation unacceptably high. The reason for this premature stopping was concern about a relatively minor slowing of economic activity. Since the clearest statements and the most obvious changes in policy occurred in July 1989, this is when we date the end of the disinflationary policy.

At the August 1989 FOMC meeting, the Committee did indeed decide to stand pat. Members, for the most part, confirmed that inflation was still unacceptably high, but that the alternative of a more-than-modest output decline was worse. For example, Boehne said (*Transcript*, 8/22/1989, p. 31):

> As far as the national economy, I think we are doing about as well as we could hope to do. We are achieving the subpar growth with a reasonable risk of recession. … On the inflation side, I think that what we have done is to contain the growth of inflation. If you look at the basic rate, I don't think we have rolled it back. Maybe that's all we can hope to achieve with this subpar growth strategy. Whether we can actually reduce the rate remains to be seen. I think our challenge today is to gather up enough strength that we'll leave well enough alone.

LaWare said: "We have done so well on so much of this, yet we are still looking at inflation levels which are unacceptable, I think, and that is the principal thing that frustrates me and makes me feel kind of helpless in this process. At the same time, I am convinced that if the only way to really knock inflation down is to have a recession, that's a very unwelcomed alternative option" (p. 39). Greenspan said: "I think policy is probably as good as we can have it at this particular moment" (p. 40). And Richard Syron, President of the Federal Reserve Bank of Boston, said: "Given the uncertainties that we face, I just don't see a reason to change at this point in time;" but "we should face the issue of where we are going over the longer run, because there's general agreement and a lot of frustration that the inflation rate is at an undesirably high level" (p. 41).