

Risk Management in Monetary Policymaking: The 1994-95 FOMC Tightening Episode

Kevin L. Kliesen

Abstract

The 1994-95 tightening episode was one of the most notable in the FOMC's history because the FOMC raised the policy rate by 300 basis points in a year, despite headline and core CPI inflation trending lower prior to the beginning of tighter policy in February 1994. Although Chair Alan Greenspan publicly signaled the FOMC's desire to normalize its policy rate prior to February 1994, the Federal Reserve's actions nonetheless caught the Treasury market by surprise, triggering a sharp decline in long-term bond prices. Chair Greenspan and the FOMC were regularly surprised that inflation was not rising by more than the forecasts suggested during the episode. This article presents some evidence that the Greenbook forecast systematically, albeit modestly, overpredicted CPI inflation during the tightening period. Still, the success of the episode stemmed importantly from the decision by Greenspan and the FOMC to increase the policy rate to a level deemed restrictive for most of 1995. The end result was the avoidance of a recession and an eventual slowing in inflation and inflation expectations.

JEL codes: E52, E58, E65

Federal Reserve Bank of St. Louis *Review*, Second Quarter 2025, Vol. 107, No. 6, pp. 1-16.
<https://doi.org/10.20955/r.2025.06>

Federal Reserve System policymakers regularly confront numerous risks in their deliberations. The practice of risk management is one method of accounting for and responding to these risks. Historically, preemption has been an aspect of the risk management approach. That is, because it takes time for monetary policy actions to influence macroeconomic outcomes, the FOMC decides to raise or lower the federal funds target rate *before* inflation or unemployment rises or falls beyond levels deemed inconsistent with its Congressional mandates of price stability and maximum employment. In this sense, preemptive policy does not rely too heavily on the modal outcome of central bank projections.

A classic episode of U.S. preemptive monetary policy occurred in 1994 under the leadership of Chair Alan Greenspan, when the FOMC began to raise the federal funds target rate in response to the

Kevin L. Kliesen is a research officer and business economist at the Federal Reserve Bank of St. Louis. The author thanks Joe Martorana, Jack Fuller, Devin Werner, and Cassandra Marks for research assistance and an anonymous referee for helpful comments.

Michael Owyang and Juan Sánchez are editors in chief of the *Review*. They are supported by Research Division economists and research fellows, who provide input and referee reports on the submitted articles.

© 2025, Federal Reserve Bank of St. Louis. The views expressed in this article are those of the author(s) and do not necessarily reflect the views of the Federal Reserve System, the Board of Governors, or the regional Federal Reserve Banks. Articles may be reprinted, reproduced, published, distributed, displayed, and transmitted in their entirety if copyright notice, author name(s), and full citation are included. Abstracts, synopses, and other derivative works may be made only with prior written permission of the Federal Reserve Bank of St. Louis.

anticipation of an acceleration in inflation rather than an actual acceleration in inflation. Preemptive policymaking can be difficult in practice because many key economic data are backward looking and/or subject to revision. To compensate for these challenges, forecasts often play an outsized role in the monetary policymaking process. But forecasting models are fallible, particularly when subject to large macroeconomic shocks.

A key motivation for this article is to provide a reasonably concise summary of the 1994-95 episode for those interested in analyzing past episodes and the application, if anything, for current and future monetary policy deliberations. This article begins with a discussion of risk management from a Bayesian perspective and as practiced by the Greenspan FOMC. The second section discusses risk management in monetary policymaking during the 1994-95 tightening episode. The third section discusses the lessons learned from the 1994-95 episode. The fourth section concludes.

1 ELEMENTS OF RISK MANAGEMENT

Preemptive monetary policy has historically been a key aspect of the FOMC's strategy going back at least as far as the McChesney Martin FOMC.¹ This policy has been called "leaning against the wind" or, more colloquially, "taking away the punchbowl before the party is really warming up."² Risk management is an aspect of preemptive monetary policy; it is a forward-looking exercise designed to cope with uncertainty about evolving economic and financial developments. This uncertainty stems importantly from the time it takes monetary policy actions to influence changes in inflation and the real economy. Greenspan was a believer in long and variable lags enunciated in Milton Friedman's 1960 book, *A Program for Monetary Stability*.³ In Greenspan's view, risk management meant that the FOMC had to assess not only the likely direction of the economy, but the distribution of risks around the expected outcomes. As a result, Greenspan argued that risk management elevated forecasting to "a prominent place in policy deliberations."⁴

The elevation of forecasting in the policymaking process presents numerous challenges. These include model specification and identification, data that are both backward looking and subject to revision, ongoing structural changes in the economy that necessitate continual updating of model parameters or the structure of the model itself, and shocks that can leave lasting imprints on the supply side of the economy.⁵ Because of their limitations, model-based forecasts are sometimes judgmentally adjusted, either to account for ad-hoc assumptions about the path of key conditioning variables such as crude oil prices or stock prices, a practice known as add-factoring, or to incorporate the effects of real-time shocks that have yet to show up in the data. Greenspan was a firm believer in add-factoring the staff's forecasting model.⁶

In view of the uncertainties faced by monetary policymakers, Greenspan chose to adopt a Bayesian risk management approach in devising the FOMC's monetary policy strategy. A Bayesian policymaking framework is a process for continually adjusting beliefs about future events in view of observed data (Poirier, 1988). But this framework, claims Efron (1986), requires "a great deal of thought about the given situation to apply sensibly." Thus, there is a subjective element that cannot be ignored.

1. See Hetzel (2022). Sinai (2004) argues that preemptive policy first appeared in 1987. However, Nelson (2012) notes that the forward-looking nature of monetary policy extended back to the 1950s.

2. See: <https://conversableeconomist.blogspot.com/2013/06/the-punch-bowl-speech-william-mcchesney.html>.

3. See Dupor (2023).

4. See Greenspan (2004).

5. See Reifschneider, et. al., (1997).

6. At the July 1994 meeting, Greenspan argued that "if we allow the MPS model to run with no add-factor changes, the results we'd get . . . would be garbage. It would be unacceptable." One of the challenges this article, and others like it, has to confront is that the "un-add-factored" forecasts are not made available to the public (to the author's knowledge).

Nonetheless, Greenspan viewed this approach as an ongoing probability-assessment exercise that (i) identifies the sources of risks that confront policymakers at any point in time; (ii) quantifies—to the extent possible—the magnitude of the risks; and (iii) assesses the costs of responding—or not responding—to each risk.⁷

Discerning the signal-to-noise ratio from key data flows (e.g., employment, inflation, production) is a key aspect of monetary policymaking. If new and/or revised data change the baseline forecasts of the goal variables, policymakers will need to either affirm the existing policy path conditioned on the highest probability outcome or tack in a new direction based on revised probabilities. Tacking in a new direction to counter potential *future* adverse outcomes based on these revised probabilities is to preemptively adjust policy.⁸ The Bayesian framework of belief updating in response to regular data flows and forecasts thus was a key feature of policymaking practiced by the Greenspan FOMC.

The next section discusses the 1994-95 episode, which remains the textbook case of a risk management approach that, in Greenspan's view, prevented an acceleration in inflation while avoiding a recession.⁹

2 RISK MANAGEMENT IN PRACTICE: THE FOMC IN 1994-95

Throughout 1993, the FOMC maintained its nominal federal funds target rate (FFTR) at 3%. In Congressional testimony on July 20, 1993, Chair Greenspan noted that the FOMC had been able to maintain an accommodative stance of monetary policy because the forces “that engendered past inflationary episodes appear to have been lacking to date.”¹⁰ He cited persistent slack in labor and product markets, international competitiveness, and the absence of excessive money and credit growth as key disinflation forces. However, Greenspan also noted that there were “disturbing readings on inflation” earlier in the year and that inflation expectations had “tilted upward” by some measures despite some slack in the real economy. But he also cautioned that slack was not a reliable indicator of future inflationary pressures. In his testimony, Greenspan indicated that the FOMC had shifted to an asymmetric directive at the May 1993 meeting that biased policy in the direction of a “possible firming of policy over the intermeeting period.” No such firming occurred in 1993. However, as noted by Pakko (1995), many FOMC participants were concerned about building inflation pressures in 1993. Of the seven dissents that were registered during the FOMC meetings in 1993, six were conditioned on the argument that the inflation outlook favored tighter policy.¹¹

Greenspan warned that with short-term real interest rates near-zero, and with long-term real interest rates “appreciably higher,” short-term rates would need to rise in order to prevent “substantial inflationary imbalances.” Several weeks later, Bill Poole, a member of the Shadow Open Market Committee (SOMC) who would be appointed president of the Federal Reserve Bank of St. Louis in March 1998, noted in the proceedings of the September 12-13, 1993, SOMC meeting that the FOMC was “discomforted” by slow M2 growth.¹² In Poole's assessment, Greenspan's focus on the inflationary conse-

7. Greenspan (2004).

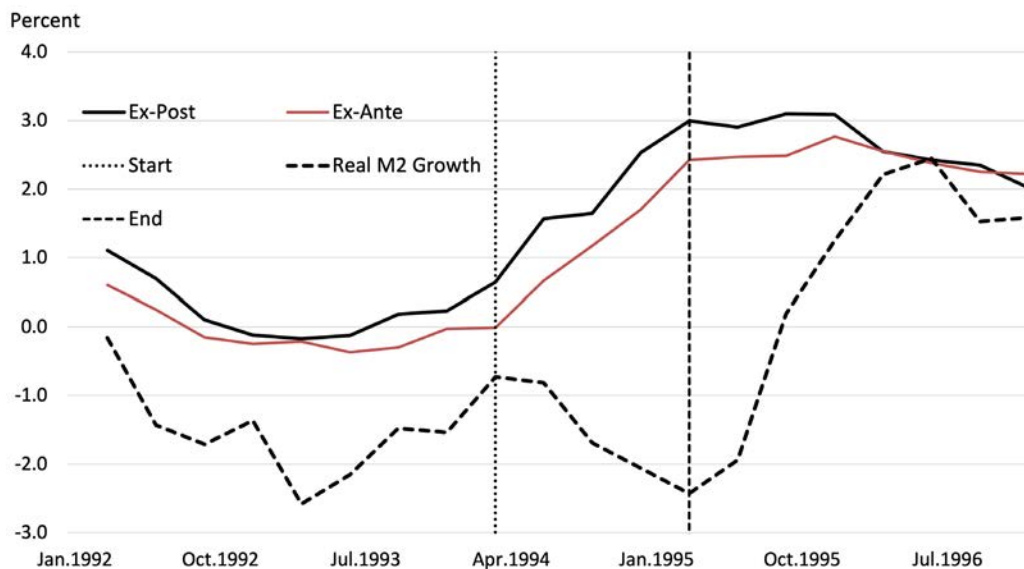
8. Unconditional point forecasts converge to the steady-state outcome, which is nearly always the highest probability—though not necessarily the most accurate outcome. The key issue according to Poole (1998) is whether, in the presence of uncertainty, policymakers are “making a mistake that is predictable at the time the decision is being made.” In Poole's view, policymakers “rarely” make “obvious” ex-ante mistakes in the presence of uncertainty given the information they acted on at the time a decision is made. In this sense, policymakers are continually updating their priors. In the language adopted by many policymakers today, this is known as a data-dependent policy.

9. The working paper version of this article includes detailed comments obtained from the FOMC transcript and meeting-by-meeting changes in Greenbook forecasts of real GDP growth and CPI inflation during the 1994-95 tightening episode.

10. See Greenspan (1993).

11. Two dissents occurred at the March 23, 1993, meeting; two at the May 18 meeting; one at the July 6-7 meeting; and two at the December 21 meeting.

12. See <https://www.shadowfed.org/archives/1993-2/>.

Figure 1**The Real Federal Funds Target Rate and Real M2 Money Growth, 1992:Q1 to 1996:Q4**

NOTE: The ex-post real rate is the nominal rate less the four-quarter percent change in the all-items CPI; the real ex-ante rate is the nominal rate less the 1-year ahead CPI forecast from the Survey of Professional Forecasters. Real M2 growth is the four-quarter percent change in the nominal growth less the four-quarter percent change in the CPI.

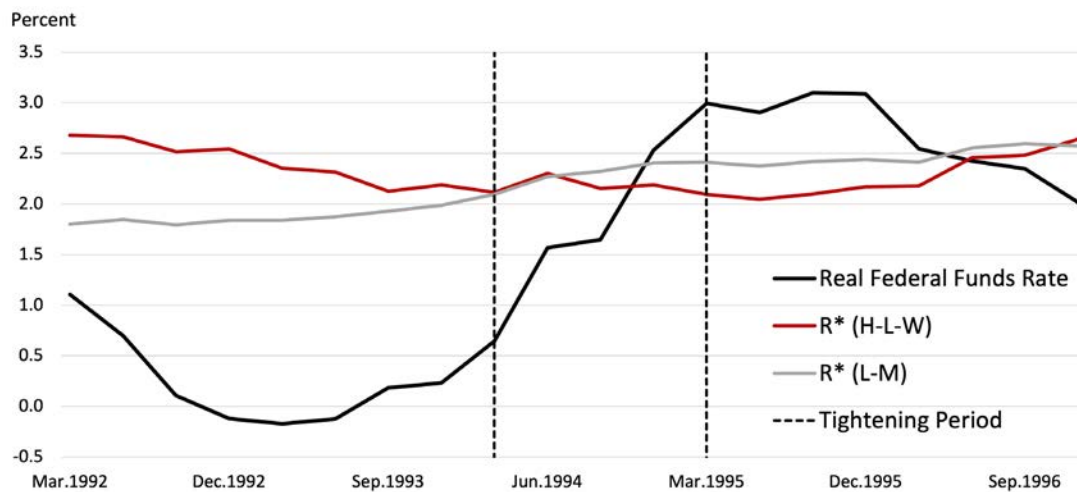
SOURCE: Federal Reserve Bank of Philadelphia and Haver Analytics.

quences of low short-term real interest rates, while misplaced, was nonetheless designed to “provide a little running room to raise the federal funds rate if necessary.” But Poole suggested that the FOMC may soon need to increase the FFTR. In fact, the SOMC policy statement ignored the monetary signals given by weak M2 growth and warned that the Fed’s “highly expansive monetary policy cannot coexist with moderate inflation and falling interest rates.” Pakko (1995) subsequently argued that the FOMC was uncertain about the appropriate conduct of monetary policy in light of structural changes in U.S. financial markets and unreliable signals from the various money stock measures.

As seen in Figure 1, short-term real interest rates (the nominal federal funds target rate less actual or expected inflation)—whether measured on an ex-ante or ex-post basis—fell modestly below zero in late 1992 and into 1993. Likewise, real M2 growth also was negative throughout 1992-93 and did not turn positive until the second half of 1995. The FOMC faced the following conundrum: Very low short-term real interest rates indicated that monetary policy was exceptionally accommodative prior to the commencement of the tightening episode. However, negative real money growth indicated the opposite. Greenspan and the FOMC chose to follow the signal provided by the former, not the latter.

Several months later, Greenspan signaled that the FOMC’s accommodative policy stance was nearing an end. In Congressional testimony on January 31, 1994, Greenspan used an early version of forward guidance to signal the increasing probability of a more restrictive monetary policy.¹³ Moving to a restrictive policy stance meant increasing the short-term real interest rate from an “abnormally low” level: “At some point, absent an unexpected and prolonged weakening of economic activity, we will need to move to a more neutral stance.” As it turned out, the initial move to a more neutral stance occurred just a few days later.

13. See Greenspan (1994).

Figure 2**The Real Federal Funds Target Rate and the Laubach-Williams and Lubik-Matthes Estimates of R***

NOTE: The real federal funds target rate is the nominal rate less the four-quarter percent change in the all-items CPI. The HLW R* measure is their one-sided filtered estimate. The L-M is the median estimate of the R*.

SOURCE: Federal Reserve Banks of New York and Richmond and Haver Analytics.

One method of measuring policy neutrality is to compare the short-term real interest rate with a measure of the long-run real neutral interest rate, often referred to as R*. Figure 2 plots the ex-post short-term real FFTR relative to two Fed measures of R*. The two R* measures in Figure 2 are the *current vintage* estimates of Holston-Laubach-Williams (HLW, 2017) and Lubik-Matthes (LM, 2015). As seen in Figure 2, the real FFTR was about 0.7% during the first quarter of 1994, whereas both the HLW and LM measures of R* were 2.1%. By this metric, policy was not restrictive prior to start of the tightening episode, as Greenspan argued in his testimony.¹⁴ Indeed, Greenspan would later comment at the March 22, 1994, meeting that the Committee needed to “restore policy to neutrality as fast as we can.”

Table 1 lists the meeting dates, policy actions, and dissents during the 1994-95 tightening episode, which began on February 4, 1994, when the FOMC increased the FFTR by 25 basis points to 3.25% (Figure 3). Prior to the start of the episode on February 4, the FOMC had maintained a 3% target rate since September 1992—an inordinately lengthy period. There is an enduring belief in financial markets and inside the Fed that the 2-year Treasury yield is a good indicator of the market’s expectation of future Fed policy changes.¹⁵ In an era that was largely devoid of the type of forward guidance that is practiced today, the 2-year Treasury rate as well as the 10-year Treasury rate were little changed in the lead up to the February 1994 increase in the FFTR. Nonetheless, financial markets were seemingly surprised by the Fed’s actions.¹⁶ After the beginning of the tightening episode, both interest rates generally moved in

14. In late-February 1994, the Federal Reserve Bank of Philadelphia’s Survey of Professional Forecasters pegged the expected growth of real GDP over the next 10 years at 2.65%. This is one proxy for potential output growth. In the March 17, 1994, Greenbook, the Board staff calculated the high-employment budget surplus as a percent of potential GDP. In a footnote (number 4) describing this calculation, staff indicated that the economy’s potential was associated with real GDP growth of 2.4% and an unemployment rate of 6%. The advance estimate for real GDP that was released in late January 1994 showed that real GDP had increased by 2.8% in 1993 (Q4/Q4), faster than either measure of real potential growth.

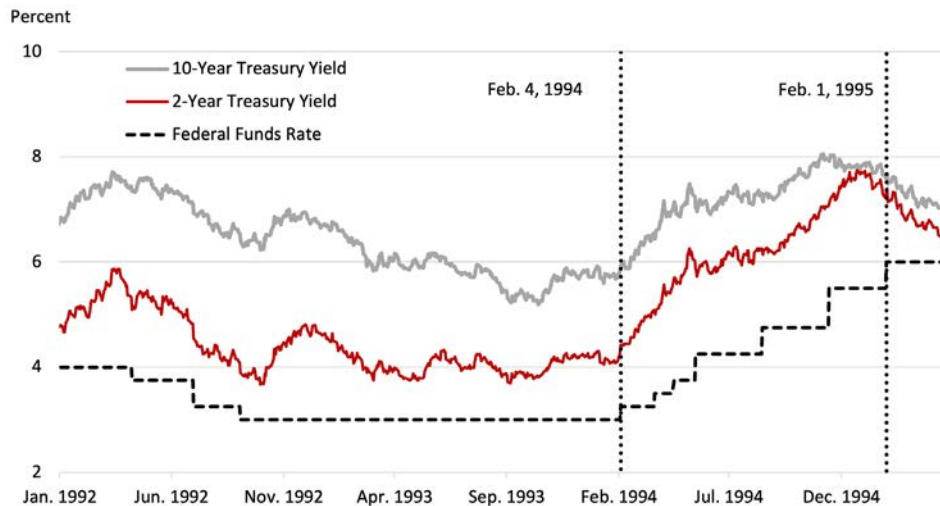
15. See Waller (2023).

16. The subsequent increase in long-term Treasury yields was termed “The Bond Market Massacre” by Fortune magazine. See <http://fortune.com/2013/02/03/the-great-bond-massacre-fortune-1994/>. By contrast, Borio and McCauley (1995) examined bond market volatility across several countries and found little evidence that the volatility stemmed from actions by monetary or fiscal policymakers.

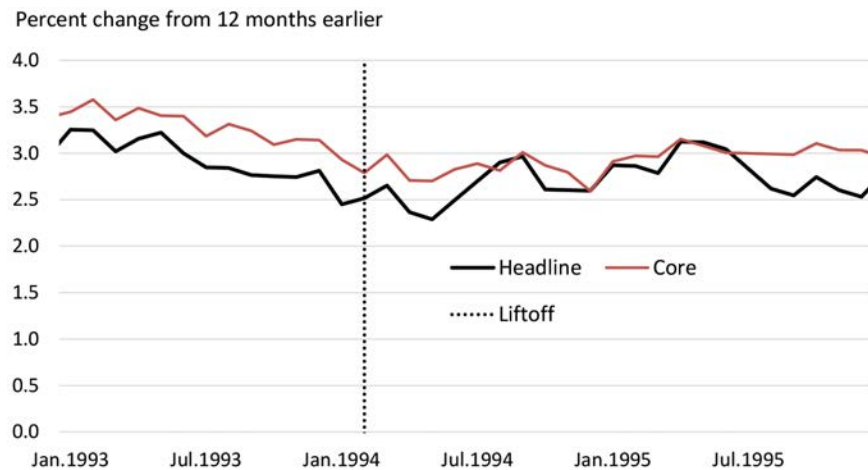
Table 1**Policy Actions Taken During the 1994-95 Fed Tightening Episode**

	Action	Beginning FFTR: 3.00%	Statement issued?	Dissents?
1994				
Feb. 3-4 meeting	Increase by 25 basis points	3.25	Yes	None
Feb. 28 conference call	No change	3.25	No	None
March 22 meeting	Increase by 25 basis points	3.50	Yes	Two (Broaddus & Jordan)
March 24 conference call	No change	3.50	No	None
April 18 conference call	Increase by 25 basis points	3.75	Yes	None
May 17 meeting	Increase by 50 basis points	4.25	Yes	None
July 5-6 meeting	No change	4.25	No	One (Broaddus)
July 20 conference call	No change	4.25	No	None
August 16 meeting	Increase by 50 basis points	4.75	Yes	None
September 27 Meeting	No change	4.75	No	One (Broaddus)
November 15 meeting	Increase by 75 basis points	5.50	Yes	None
December 20 meeting	No change	5.50	No	One (LaWare)
December 30 conference call	No change	5.50	No	None
1995				
January 13 conference call	No change	5.50	No	None
Jan. 31-Feb. 1 meeting	Increase by 50 basis points	6.00	Yes	None
March 10 conference call	No change	6.00	No	None
March 28 meeting	No change	6.00	No	None

SOURCE: Board of Governors of the Federal Reserve System.

Figure 3
The 1994-95 FOMC Tightening Formula

SOURCE: Federal Reserve, U.S. Treasury, and Haver Analytics.

Figure 4**Headline and Core CPI Inflation, January 1993 to December 1995**

SOURCE: BEA and Haver Analytics.

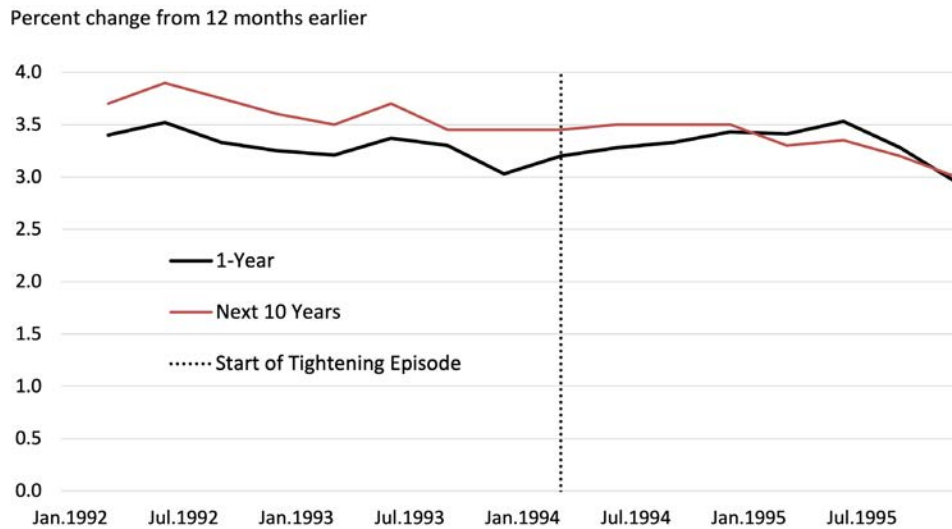
lockstep with the increases in the FFTR. However, both rates also peaked in late 1994 and began to decline before the final FFTR hike on February 1, 1995.

The FOMC initially moved cautiously, raising the FFTR by 75 basis points over the course of two meetings and two conference calls. The FOMC then raised the FFTR by 50 basis points in May and August. The next move was a large 75-basis-point increase at the November meeting. During this period, policy statements were issued when a change in the FFTR occurred, but not when the Committee left the FFTR unchanged. In all, there were dissents at four meetings. Each of the dissenters favored tighter policy than what the majority voted in favor of.

A key motivation for Greenspan and many FOMC participants for commencing the tightening in February 1994 was the potential for building inflationary pressures. But as seen in Figures 4 and 5, there was scant evidence of an acceleration in CPI inflation or inflation expectations prior to February 1994. Indeed, the expectation of higher inflation occurred against the backdrop of a *deceleration* in both the all-items (headline) and core CPI inflation prior to the beginning of the episode. Figure 4 shows that the headline CPI inflation rate slowed from 3.25% in February 1993 to 2.5% in January 1994 (12-month percent changes), while the core CPI inflation rate slowed from about 3.5% to about 2.75%. Thereafter, both inflation measures stabilized, and, on net, by the spring of 1995 they slightly exceeded the rates that had prevailed in February 1994. In that sense, Greenspan and other FOMC participants correctly foresaw the modest increase in inflation pressures that occurred after the FOMC implemented its policy of a higher FFTR.

A somewhat similar pattern was evident in measures of short- and long-term CPI inflation expectations measured by the Survey of Professional Forecasters. Figure 5 shows that short-term (one-year-ahead) inflation expectations began to increase prior to the FOMC's FFTR increase in February 1994; however, they were still below the levels that prevailed in early 1992. Short-term inflation expectations would eventually increase by 50 basis points to 3.5% in mid-1995. Long-term inflation expectations during February 1994 were at 3.5%, also modestly below the levels that prevailed in early 1992. Long-term inflation expectations remained at 3.5% from the third quarter of 1993 through the fourth quarter of 1994, but then they trended modestly lower thereafter. Greenspan might have viewed the rise in long-term Treasury yields as an inflation scare that would eventually show up in measures of inflation or

Figure 5
Short- and Long-Term CPI Inflation Expectations, 1992:Q1 to 1996:Q4



SOURCE: Federal Reserve Bank of Philadelphia.

inflation expectations.¹⁷ Indeed, as seen in Figure 3, 10-year Treasury yields fell steadily from March 1992 to October 1993, only to reverse course sharply. By early November 1994, 10-year yields were at their highest levels since late July 1991.

Table 1 shows that the 1994-95 tightening episode ended at the January 31-February 1, 1995, FOMC meeting. The meeting concluded with a 50-basis-point increase in the FFTR. In all, the FOMC raised the nominal FFTR by 300 basis points in a year's time. From the third quarter of 1993 to the first quarter of 1995, the ex-post real FFTR rose by 276 basis points, while the ex-ante real FFTR rose by 245 basis points. A higher ex-post real FFTR indicates that policy was modestly more restrictive than initial expectations or, equivalently, that actual inflation was modestly less than expected (see Figure 1). Meanwhile, as shown in Figure 2, policy turned restrictive in late 1994, when the ex-post real FFTR finally surpassed both measures of R^* .

Monetary policy would remain restrictive throughout 1995 according to this metric. However, as seen in Figure 1, real M2 growth was accelerating rapidly after the final FFTR increase. The divergent signals between real interest rates and real money growth were similar to late 1993. As before, Greenspan favored the signal from real interest rates rather than real money growth. Thus, with expectations of a soft landing in sight, the FOMC voted to maintain the FFTR at 6% at the March 28 and May 23 FOMC meetings. In fact, as seen in Figure 2, the FOMC maintained a restrictive policy rate throughout 1995, keeping the real FFTR above R^* . By June 1995, though, it was clear that the economy was slowing sharply. The FOMC then pivoted, reducing the policy rate three times in 25-basis-point increments from July 1995 to January 1996.

On the inflation front, the Board staff admitted that the data were coming in better than expected in 1995, but this positive development was partially offset in their view by higher levels of “resource utilization.” The end result, reflecting their growth assumptions for the second half of 1995, was a 0.1-per-

17. The inflation scare term originated with Goodfriend (1993), who argued that “a significant long-rate rise in the absence of an aggressive funds rate tightening is an inflation scare since it reflects rising expected long-run inflation.” However, the rise in 10-year Treasury yields in 1994 occurred against the backdrop of a rising FFTR that was initially modest (three 25-basis-point moves in February, March, and April).

centage-point decrease in CPI inflation (2.9% to 2.8%) projected over the following four quarters. In the statements announcing rate cuts in July and December 1995 and in January 1996, the FOMC cited favorable inflation developments as motivation for reducing the FFTR.

Undergirding the twist and turns in the economy and inflation during the 1994-95 tightening episode was a relatively healthy labor market in which the unemployment rate would slowly decline rather than increase. In January and February 1994, the unemployment rate measured 6.6%. By February 1995, the unemployment rate was 1.2 percentage points lower than a year earlier. Moreover, the unemployment rate would steadily decline on net, thereafter falling to under 5% on a continual basis in the third quarter of 1997. In 1997, real GDP would increase by 3.9%, a marked acceleration from 1996 (3.3%) and 1995 (1.6%).¹⁸ There is no agreed-upon measure of a soft landing in the midst of an FOMC tightening episode; but, a steady decline in the unemployment rate and continued positive growth in real GDP in the absence of an acceleration in inflation or inflation expectations suggests that the FOMC achieved its soft landing. Sinai (2004) used a large-scale macroeconomic model to perform counterfactual simulations with and without preemptive policy from 1994 to 2002. His results showed that average economic growth was higher than if there had not been preemption. Although the volatility of inflation was little different between the simulations, average inflation was lower under preemption.

Additional Evidence of Tighter Policy from the Taylor Rule

The above analysis associated with Figure 2 indicates that the move to a restrictive policy stance ($R > R^*$) over the second half of 1994 and in 1995 was a key factor in keeping inflation and inflation expectations from increasing.¹⁹ Another method for assessing the Greenspan Fed's success in moving to a restrictive policy during this tightening episode is through the lens of a policy rule.

One popular rule that has endured over time—albeit with several modifications—is the Taylor rule. However, Taylor's paper that described his ubiquitous rule was not published until 1993.²⁰ According to Kahn (2012), the first FOMC participant to mention the use of the Taylor rule for policy considerations was then Governor Janet Yellen at the January 31-February 1, 1995, meeting. Later, in November 1995, Don Kohn prepared a formal FOMC Staff Briefing presentation, which discussed and summarized several versions of the Taylor rule.²¹ According to Judd and Rudebusch (1998), the Taylor rule gained the attention of some other monetary policymakers in 1996, including then Governors Alan Blinder and Laurence Meyer. It was also reported in *Business Week*. The Taylor rule thus appeared to play little, if any, role in the policy deliberations during the 1994-95 tightening episode.²²

Since then, several economists have estimated Taylor rules using data that were available at the time to gauge whether the Fed policymakers' decisions aligned with the rule. These include papers by Orphanides (2001, 2003) and Mehra and Minton (2007). As noted above, there are many versions of the rule, but the original 1993 version is the one that will be used here. Specifically, as in Judd and Rudebusch (1998), the 1993 rule is the following:

$$i_t = \pi_t + r^* + 0.5(\pi_t - \pi^*) + 0.5(y_t);$$

where i = federal funds rate;
 r^* = equilibrium real federal funds rate;

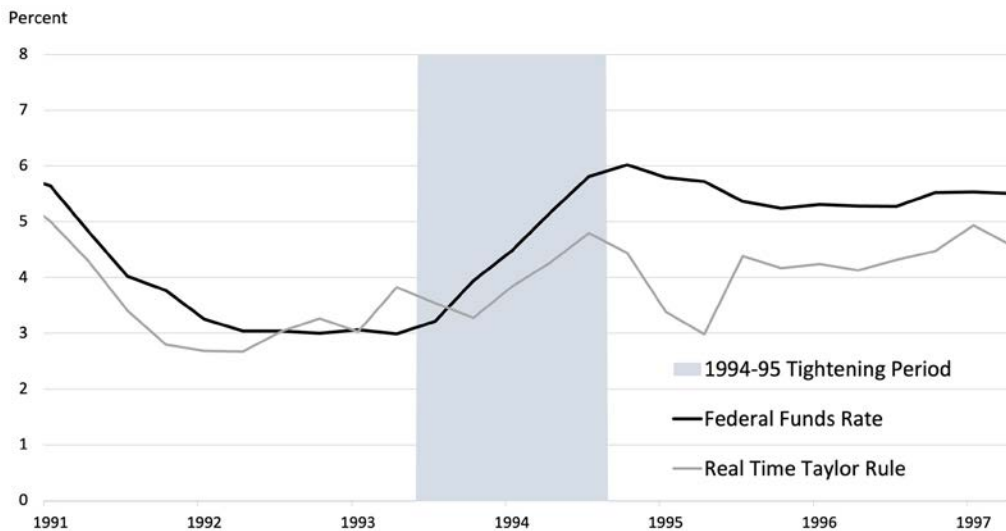
18. Data are based on the advance estimate for fourth quarter 1997 GDP released in early 1998 by the Bureau of Economic Analysis.

19. This framework ($R > R^*$) follows from what has come to be known as the Taylor Principle: The nominal interest rate target must be increased proportionately more than an increase in inflation. That is, the real interest rate must increase.

20. See Taylor (1993).

21. See <https://www.federalreserve.gov/monetarypolicy/files/FOMC19951115material.pdf>.

22. It is possible that earlier analysis of the Taylor rule and its implications for monetary policy were written by the staff in memos to FOMC participants. However, most of these memos are not publicly available.

Figure 6**The Nominal Federal Funds Rate and the Classic Taylor Rule in Real Time, 1991-97**

SOURCE: Orphanides (2003).

π = average inflation rate over the contemporaneous and prior three quarters (GDP deflator);

π^* = target inflation rate; and

y = output gap ($100 \times (\text{real GDP} - \text{potential GDP}) \div \text{potential GDP}$).

Figure 6 shows the actual FFTR and the predicted FFTR from the 1993 Taylor rule from the beginning of 1991 to the end of 1997. The chart uses real-time data from Orphanides (2003). Throughout most of 1991-92, the actual FFTR followed the rule. Beginning in early 1993, the Taylor rule began to prescribe a modestly higher FFTR. From the fourth quarter of 1993 to the first quarter of 1995, the rule prescribed an increase in the FFTR from 3.8% to 4.8%. However, the actual FFTR rose from 3% to 6%. The Taylor rule then prescribed a temporary reduction in the FFTR in the second quarter of 1995 as actual inflation began to slow, whereas the FOMC did not reduce the FFTR until the July 5-6, 1995, meeting. Throughout the rest of this period, the actual FFTR was above the rule-based estimate, suggesting that policy was tighter than suggested by the Taylor rule. Also recall from Figure 2 that the real FFTR fell below R^* in 1996, which signaled tighter policy in 1995 but then a modestly accommodative policy in 1996.

3 LESSONS FROM THE 1994-95 EPISODE

The 1994-95 episode is illuminating because it reveals a few key aspects of Greenspan's version of risk management during this tightening episode.²³ First, the FOMC moved cautiously during the early stages, as reflected by three 25-basis-point increases (see Table 1). This caution to a large extent was

23. Some of the lessons draw upon discussions from the transcripts that are quoted in the working paper version of this article. Economists have long studied the FOMC transcripts and other records to ascertain the Committee's motivation for choosing to implement a specific policy at any given point in time. A sampling across time includes Poole (1979), Spencer (1996), Chappell, Havrilesky, and McGregor (1997), Edison and Marquez (1998), Romer and Romer (2002), Goodfriend and King (2005), Anderson and Kliesen (2012), Meade and Thornton (2012), Kliesen and Wheelock (2021), Shapiro and Wilson (2022), and Romer and Romer (2023). Meade and Thornton emphasize that a proper evaluation of historical monetary analysis must rely on real-time data. This is also the conclusion of others, such as Orphanides (2001). Thus, the conclusions formed in this article depend, as much as possible, on real-time data and policy analysis. Blinder and Reis (2005) offer a longer list of their assessment of Greenspan's key principles for monetary policymaking.

motivated by financial market developments. Greenspan wanted to prick the perceived bubble in equity markets without damaging the real economy. However, he was also not averse to tightening despite a “large risk premium in financial markets.” In fact, at the May 1994 meeting, Greenspan was unconcerned about overtightening, believing it would only temporarily slow the economy. Second, the FOMC paused several times to evaluate the cumulative effects of its actions. Of the nine FOMC meetings and six conference calls that took place from February 3, 1994, to February 1, 1995, the FOMC raised the FFTR at six meetings and during one conference call.²⁴ In pausing several times between rate hikes—the lone exception was back-to-back increases on April 18 and May 17—the FOMC’s actions during this episode were consistent with the Bayesian framework of belief updating. For example, at the September 1994 meeting, Greenspan argued that there was a “gradual progression” in the lagged effects of past actions, but he was nonetheless comfortable with waiting “to move further somewhere along the line.”

Third, Greenspan was also willing to move expeditiously and aggressively, if necessary, as indicated by the aforementioned intermeeting move in April, the move at the May meeting, and the large 75-basis-point increase at the November meeting. In making the case for a 75-basis-point hike at the November 15, 1994, meeting, Greenspan worried that increasing the FFTR by only 50 basis points would spur markets to “immediately” price in another 50 basis points in December. Thus, increasing the FFTR by only 50 basis points in November made him “very nervous.”

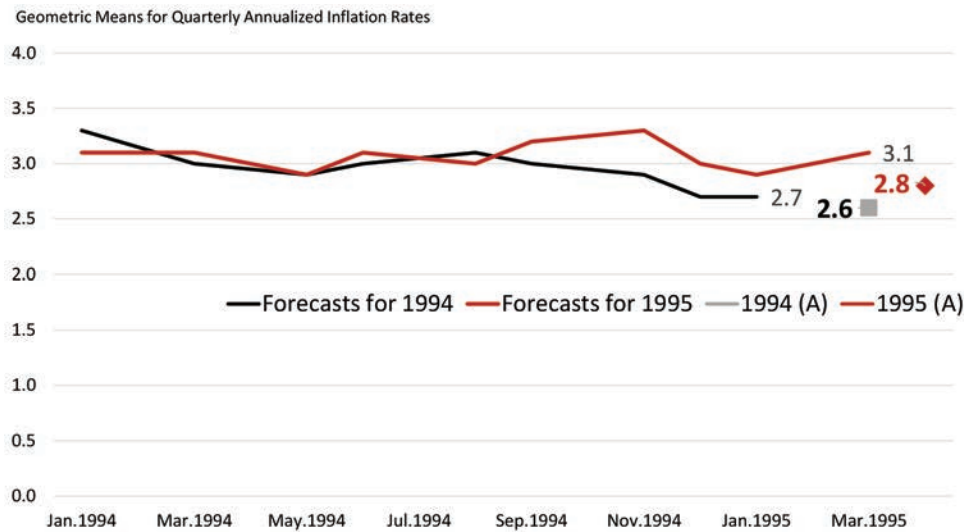
Fourth, throughout the episode, Greenspan regularly focused on inventory investment as a key indicator of the economy’s momentum. For example, at the February 3-4 meeting that began the tightening episode, Greenspan said that “if there’s one element of tranquility in our forecast, which was gradually lulling us into considerable complacency, it’s on the inventory side.” Six months later at the September 27, 1994, meeting, Greenspan raised the possibility of an inventory recession at the end of the tightening cycle, but then wondered “why we are this far into the business cycle expansion without the types of price pressures that we have seen on previous occasions.” Fifth, and in this vein, Greenspan was regularly surprised by the subdued nature of inflation pressures. This sentiment was expressed at the March, May, July, September, and December 1994 meetings. Finally, as noted earlier, Greenspan initially focused on the gap between short- and long-term real interest rates as an indicator of future inflation pressures. However, as the real economy continued to surprise to the upside in 1994, he began to pay more attention to high levels of resource utilization—a nod to the Phillips curve framework—to keep inflation in check (July, September, and November 1994 FOMC Press Releases).

Overall, this tightening episode was the shortest of the Greenspan era. In fact, the FOMC tightening episodes during the Greenspan tenure were about a third shorter in duration compared with those from the Volcker FOMC’s last tightening episode (1983-84), the Yellen episode (2015-18), and the Powell episode (2022-23).²⁵ Years later, Chair Greenspan, repeating the view expressed during his Humphrey-Hawkins Congressional testimony in February 1995 and then announced formally by the FOMC in the July 6, 1995, Press Release when it declared “inflationary pressures have receded enough,” would recount the key lesson arising from this episode:

[I]t became clear that underlying price pressures were again building. If we had left those pressures unchecked, we would have put at risk some of the hard-won gains that had been achieved over the preceding decade and a half. So, starting from a real federal funds rate that was close to zero, a preemptive tightening was initiated. The resulting rise in the funds rate of 300 basis points over 12 months apparently defused those nascent inflationary pressures. (Greenspan, 2004)

24. This episode differed sharply from the 2022-23 period, when the FOMC raised the FFTR at 10 consecutive meetings from March 2022 to May 2023.

25. The elongated 2004-06 tightening episode, which overlapped with the start of the Bernanke era in March 2006, was a notable exception. As FOMC Chair, Ben Bernanke presided over three 25-basis-point increases in the FFTR at the March, May, and June 2006 FOMC meetings. They were the last tightening actions of his tenure as FOMC Chair. See Kliesen (2023) for an analysis of the Fed tightening episodes from 1983 to 2018.

Figure 7**Greenbook Forecast for CPI Inflation in 1994 and 1995 by FOMC Meeting, February 1994 to March 1995, and Actual CPI Inflation for 1994 and 1995**

SOURCE: Greenbook on www.federalreserve.gov.

Was the FOMC Too Pessimistic About the Prospects for Higher Inflation?

As documented in this article, Greenspan and the Committee were regularly surprised that inflation pressures were not more evident. And yet, as seen in Figure 7, the Greenbook forecasts of CPI inflation for 1994 and 1995 remained roughly constant at about 3% through the first eight months of 1994. But while the forecasts for 1994 began to drift lower, the forecasts for 1995 began to drift higher. The latter dovetails with the FOMC’s assessment of building inflation pressures. Thus, the widening gap in the 1994 and 1995 inflation forecasts likely were an important factor in the FOMC’s decision to raise the FFTR by 175 basis points from August 1994 to February 1995. But in both cases, actual inflation turned out to be modestly lower than the forecasts from the beginning of the tightening episode. So, perhaps that is what Greenspan meant by his contention that underlying price pressures were “apparently defused.”

But there might be another way to gauge Greenspan’s contention that the FOMC’s actions successfully defused these “nascent inflationary pressures.” Recall from Figure 4 that beginning in mid-1994 there was a modest upward drift in headline CPI inflation and, less so, in core CPI inflation that persisted until mid-1995. But whereas headline inflation began to drift lower in summer 1995 to around 2.5%, core inflation remained roughly constant at 3%. Figure 5 shows that one-year-ahead inflation expectations also drifted modestly upward beginning in early 1994 but then peaked at 3.5% in mid-1995 and began to drift lower. Longer-run inflation expectations, by contrast, remained unchanged at about 3.5% from fall 1993 to early 1995, but they then began to drift lower. So, in that sense, the tightening episode appeared to succeed in reducing inflation expectations.

Table 2 reports forecast errors (actual less forecast) for the first estimates for real GDP growth and CPI inflation for the quarter. Forecast errors are calculated for the period 1994:Q1 to 1995:Q1 using Greenbook forecasts reported in the Appendix Table for (i) two meetings before the first estimates were available to the FOMC and (ii) the meeting immediately prior to the first estimates. For example, the first estimates for real GDP growth and CPI inflation for the first quarter of 1994 were available at the May 17, 1994, FOMC meeting. At the January FOMC meeting, the Greenbook forecast was that real

Table 2
Greenbook Forecast Errors (A-F) for Real GDP Growth and CPI Inflation

	1994:Q1	1994:Q2	1994:Q3	1994:Q4	1995:Q1	Average
Two GBs ahead						
Real GDP	-1.4	-0.5	0.6	-0.4	-0.4	-0.4
CPI inflation	-1.7	0.1	-0.4	-0.1	0.3	-0.4
One GB ahead						
Real GDP	-0.6	0.2	0.4	-0.4	0.3	0.1
CPI inflation	-0.2	0.1	-0.2	-0.2	0.1	-0.1

SOURCE: Data from Appendix table.

GDP would increase at a 4% annual rate in the first quarter and that inflation would increase at a 3.6% annual rate. Approximately six weeks later, with an additional month of source data, the Greenbook forecast for real GDP growth was lowered to 3.2% and the inflation forecast was lowered to 2.1%. When the actual numbers were released in mid- to late-April 1994 and available at the May 17 FOMC meeting, the advance estimates showed that real GDP increased at a 2.6% annual rate in the first quarter of 1994 and that the CPI increased at a 1.9% annual rate.

Although counterfactuals are hard to prove, Table 2 provides some evidence that inflation fears were slightly overwrought during the tightening period. Table 2 indicates that, on average, the Greenbook forecast error for real GDP growth was -0.4% two meetings in advance but was 0% one meeting in advance. For inflation, the average Greenbook forecast error was also -0.4% two meetings in advance but was -0.1% one meeting in advance. These findings are not too surprising, since additional source data should result in a more-accurate forecast the closer to the actual release date of the series in question. Admittedly, the forecast errors are not terribly large, and, moreover, this evidence must be viewed as tentative given the small sample size. Regardless, the big picture outcome was the following: The FOMC successfully lowered longer-term inflation expectations without driving the economy into a recession.

CONCLUSION

The 1994-95 FOMC tightening episode was one of the most notable in Fed history. First, the FOMC raised the policy rate by 300 basis points in a year, even though headline and core CPI inflation were trending lower prior to the first increase in the FFTR in February 1994. Second, the FOMC's actions apparently caught the Treasury market by surprise, triggering a sharp decline in long-term bond prices. Third, Greenspan contended that the motivation for the tightening action was to defuse the building underlying price pressures. And indeed, both headline and core CPI inflation began to increase modestly in mid-1994, less so for core inflation. However, this article shows that Chair Greenspan and the Committee were regularly surprised that inflation was not rising by more than the forecasts suggested. Indeed, this article presents some evidence that the Greenbook forecast systematically, albeit modestly, overpredicted CPI inflation during the tightening period.

Another interpretation of the FOMC's preemptive policy actions in 1994 is that Greenspan was acting in an opportunistic fashion, which he termed "principled opportunism," to inexorably, if slowly, drive inflation toward his definition of price stability—"zero, if properly measured."²⁶ Greenspan's

26. This statement occurred during debate between then Fed Governor Janet Yellen and Richmond Fed President Al Broaddus on the merits of inflation targeting during the July 2-3, 1996, FOMC meeting.

desire to achieve this outcome in a strategic fashion was consistent with his risk management approach. For example, the FOMC maintained a restrictive policy rate for most of 1995—even in the face of an economy that gradually slowed so much that the FOMC reversed course in July 1995 and implemented three 25-basis-point rate cuts.

In all, the tightening action of 1994-95 and the subsequent easing action in 1995-96 reduced longer-run inflation expectations without triggering a recession. In that sense, the 1994-95 tightening episode was a roaring success. In yet another twist, Greenspan eventually concluded that the nascent strengthening in labor productivity growth was a key factor in restraining the growth of unit labor costs and thus in keeping inflation pressures in check.

REFERENCES

- Anderson, Richard G., and Kevin L. Kliesen. “How Does the FOMC Learn About Economic Revolutions? Evidence from the New Economy Era, 1994-2001,” *Business Economics*, Volume 47, No. 1, January 2012, pp. 27-56.
- Blinder, Alan S., and Ricardo Reis. “Understanding the Greenspan Standard,” *The Greenspan Era: Lessons for the Future*, Federal Reserve Bank of Kansas City *Economic Symposium*, August 2005.
- Borio, Claudio E.V., and Robert N. McCauley. “The Anatomy of the Bond Market Turbulence of 1994,” Bank for International Settlements, Working Paper No. 32, December 1995; <https://www.bis.org/publ/work32.pdf>.
- Chappell, Henry W., Jr., Thomas M. Havrilesky, and Rob Roy McGregor. “Monetary Policy Preferences of Individual FOMC Members: A Content Analysis of the Memoranda of Discussion,” *Review of Economics and Statistics*, Vol. 79, No. 3, August 1997, pp. 454-60; <https://www.jstor.org/stable/2951392?seq=1>.
- Dupor, Bill. “Examining Long and Variable Lags in Monetary Policy,” *Federal Reserve Bank of St. Louis Regional Economist*, May 24, 2023; <https://www.stlouisfed.org/publications/regional-economist/2023/may/examining-long-variable-lags-monetary-policy>.
- Edison, Hali J., and Jaime Marquez. “US Monetary Policy and Economic Modeling: Tales from the FOMC Transcripts 1984-1991,” *Economic Modelling*, Vol. 15, 1998, pp. 411-28.
- Efron, B. “Why Isn’t Everyone a Bayesian?” *American Statistician*, Feb. 1986, Vol. 40, No. 1, pp. 1-5; <https://www.jstor.org/stable/pdf/2683105.pdf>.
- Goodfriend, Marvin. “Interest Rate Policy and the Inflation Scare Problem,” *Federal Reserve Bank of Richmond Economic Quarterly*, Volume 79/1, Winter 1993, pp. 1-23.
- Goodfriend, Marvin, and Robert G. King. “The Incredible Volcker Disinflation,” *Journal of Monetary Economics*, Volume 52/5, July 2005, pp. 981-1015.
- Greenspan, Alan. “Testimony Before the Subcommittee on Economic Growth and Credit Formation of the Committee on Banking, Finance and Urban Affairs, US House of Representatives,” July 20, 1993; https://fraser.stlouisfed.org/files/docs/historical/greenspan/Greenspan_19930720.pdf?utm_source=direct_download.
- Greenspan, Alan. “Testimony Before the Joint Economic Committee, United States Congress,” January 31, 1994; https://fraser.stlouisfed.org/files/docs/historical/greenspan/Greenspan_19940131.pdf?utm_source=direct_download.
- Greenspan, Alan. “Risk and Uncertainty in Monetary Policy,” *Papers and Proceedings, American Economic Review*, May 2004, pp. 33-40; <https://pubs.aeaweb.org/doi/pdfplus/10.1257/0002828041301551>.
- Hetzel, Robert L. *The Federal Reserve: A New History*, The University of Chicago Press, 2022.
- Holston, Kathryn, Thomas Laubach, and John C. Williams. “Measuring the Natural Rate of Interest: International Trends and Determinants,” *Journal of International Economics*, Volume 108, Supplement 1, May 2017, pp. S59-S75; <https://doi.org/10.1016/j.jinteco.2017.01.004>.
- Judd, John P., and Glenn D. Rudebusch. “Taylor’s Rule and the Fed: 1970-1997,” *Federal Reserve Bank of San Francisco Economic Review*, Number 3, 1998; <https://www.frbsf.org/economic-research/wp-content/uploads/sites/4/3-16.pdf>.
- Kahn, George A. “The Taylor Rule and the Practice of Central Banking,” in *The Taylor Rule and the Transformation of Monetary Policy*, (eds., Evan F. Koenig, Robert Leeson, and George A. Kahn), Hoover Institution Press, 2012, pp. 63-101.
- Kliesen, Kevin L. “A Comparison of Fed “Tightening” Episodes Since the 1980s,” *International Journal of Central Banking*, 2023, Volume 19, Number 3, August 2023, pp. 423-50; <https://www.ijcb.org/journal/ijcb23q3a10.pdf>.
- Kliesen, Kevin L. and David C. Wheelock. “Managing a New Policy Framework: Paul Volcker, the St. Louis Fed, and the 1979-82 War on Inflation,” *Federal Reserve Bank of St. Louis Review*, First Quarter 2021, 103(1), pp. 71-97; <https://doi.org/10.20955/r.103.71-97>.

- Lubik, Thomas A., and Christian Matthes. "Calculating the Natural Rate of Interest: A Comparison of Two Alternative Approaches," Federal Reserve Bank of Richmond *Economic Brief*, October 2015, EB15-10; https://www.richmondfed.org/-/media/RichmondFedOrg/publications/research/economic_brief/2015/pdf/eb_15-10.pdf.
- Meade, Ellen E., and Daniel L. Thornton. "The Phillips Curve and US Monetary Policy: What the FOMC Transcripts Tell Us," *Oxford Economic Papers*, Volume 64, No. 2, April 2012, pp. 197-216; <https://www.jstor.org/stable/41421494>.
- Mehra, Yash P., and Brian D. Minton. "A Taylor Rule and the Greenspan Era," Federal Reserve Bank of Richmond *Economic Quarterly*, Volume 93, Number 3, Summer 2007; https://www.richmondfed.org/-/media/richmondfedorg/publications/research/economic_quarterly/2007/summer/pdf/mehra_minton.pdf.
- Nelson, Edward L. "A Review of Allan Meltzer's A History of the Federal Reserve, Volume 2," *International Journal of Central Banking*, 2012, Volume 8, Number 2, June 2012, pp. 241-266; <https://www.ijcb.org/journal/ijcb12q2a7.htm>.
- Orphanides, Athanasios. "Monetary Policy Rules Based on Real-Time Data," *American Economic Review*, Vol. 91, Issue 4, September 2001, pp. 964-85; DOI: 10.1257/aer.91.4.964.
- Orphanides, Athanasios. "Historical Monetary Policy Analysis and the Taylor Rule," *Journal of Monetary Economics*, Vol. 50, Issue 5, July 2003, pp. 983-1022; doi:10.1016/S0304-3932(03)00065-5.
- Pakko, Michael R. "The FOMC in 1993 and 1994: Monetary Policy in Transition," *Federal Reserve Bank of St. Louis Review*, March/April 1995, 77(2), pp. 3-25.
- Poirier, Dale J. "Frequentist and Subjectivist Perspectives on the Problems of Model Building in Economics," *Journal of Economic Perspectives*, Winter 1988, Vol. 2, No. 1, pp. 121-44; <https://www.jstor.org/stable/1942744>.
- Poole, William. "Burnsian Monetary Policy: Eight Years of Progress?" *Journal of Finance*, Vol. 34(2), May 1979, pp. 473-84.
- Poole, William. "A Policymaker Confronts Uncertainty," *Federal Reserve Bank of St. Louis Review*, September/October 1998, 80(5), pp. 3-8.
- Reifschneider, David L., David J. Stockton, and David W. Wilcox. "Econometric Models and the Monetary Policy Process," *Carnegie-Rochester Conference Series on Public Policy*, Volume 47, December 1997, pp. 1-37; [https://doi.org/10.1016/S0167-2231\(98\)00002-5](https://doi.org/10.1016/S0167-2231(98)00002-5).
- Romer, Christina D., and David H. Romer. "A Rehabilitation of Monetary Policy in the 1950s," *American Economic Review*, Vol. 92(2), May 2002, pp. 121-27.
- Romer, Christina D., and David H. Romer. "Presidential Address: Does Monetary Policy Matter? The Narrative Approach after 35 Years," *American Economic Review*, Vol. 113(6), 2023, pp. 1395-1423; <https://doi.org/10.1257/aer.113.6.1395>.
- Shapiro, Adam Hale, and Daniel J. Wilson. "Taking the Fed at its Word: A New Approach to Estimating Central Bank Objectives using Text Analysis," *Review of Economic Studies*, Volume 89, No. 5, October 2022, pp. 2768-2805; <https://doi.org/10.1093/restud/rdab094>.
- Sinai, Allen. "Preemption, Changing Structure, and U.S. Monetary Policy," *American Economic Review*, Vol. 94, Issue 2, May 2004, pp. 49-52; <https://www.jstor.org/stable/3592855?seq=1>.
- Spencer, Roger W. "Monetary Policy at Work: Lessons from the FOMC Transcripts," *Journal of Economic Education*, Fall 1996, pp. 309-22.
- Taylor, John B. "Discretion Versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy*, Volume 39, December 1993, pp. 195-214; [https://doi.org/10.1016/0167-2231\(93\)90009-L](https://doi.org/10.1016/0167-2231(93)90009-L).
- Waller, Christopher J. "Big Shocks Travel Fast: Why Policy Lags May Be Shorter Than You Think," Remarks at the Money Marketeers of New York University, New York, New York, July 13, 2023; <https://www.federalreserve.gov/newsevents/speech/waller20230713a.htm>.

Appendix Table

Greenbook Forecast for Real GDP Growth and CPI Inflation, December 1993 to March 1995

Greenbook date (italics)	Forecast horizons																		
	1992:Q3	1992:Q4	1993:Q1	1993:Q2	1993:Q3	1993:Q4	1994:Q1	1994:Q2	1994:Q3	1994:Q4	1995:Q1	1995:Q2	1995:Q3	1995:Q4	1996:Q1	1996:Q2	1996:Q3	1996:Q4	
<i>12/21/1993</i>																			
Real GDP	3.4	5.7	0.8	1.9	2.7	5.0	3.6	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CPI	2.9	3.2	3.7	2.8	1.4	2.9	2.9	3.5	3.2	3.0	3.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
<i>1/28/1994</i>																			
Real GDP	3.4	5.7	0.8	1.9	2.9	5.9	4.0	3.0	2.5	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
CPI	2.9	3.2	3.7	2.8	1.4	2.8	3.6	3.6	3.0	2.8	3.4	3.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9
<i>3/17/1994</i>																			
	Revisions to CPI inflation																		
Real GDP	3.4	5.7	0.8	1.9	2.9	7.5	3.2	2.5	2.7	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4
CPI	2.9	3.5	2.8	3.1	2.0	3.1	2.1	3.6	3.4	3.0	3.4	3.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9
<i>5/13/1994</i>																			
Real GDP	3.4	5.7	0.8	1.9	2.9	7.0	2.6	4.2	2.7	2.1	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4
CPI	2.9	3.5	2.8	3.1	2.0	3.1	1.9	2.7	3.5	3.3	3.1	2.9	2.8	2.8	2.7	2.7	2.7	2.7	2.7
<i>6/29/1994</i>																			
Real GDP	3.4	5.7	0.8	1.9	2.9	7.0	3.0	3.5	2.9	2.4	2.0	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4
CPI	2.9	3.5	2.8	3.1	2.0	3.1	1.9	2.7	3.7	3.6	3.4	3.1	3.0	2.9	2.9	2.9	2.9	2.9	2.9
<i>8/12/1994</i>																			
	Revisions to Real GDP																		
Real GDP	3.5	5.7	1.2	2.4	2.7	6.3	3.3	3.7	2.8	2.3	1.9	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3
CPI	2.9	3.5	2.8	3.1	2.0	3.1	1.9	2.8	4.0	3.5	3.3	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
<i>9/21/1994</i>																			
Real GDP	3.5	5.7	1.2	2.4	2.7	6.3	3.3	3.8	3.0	2.8	1.9	1.7	1.8	2.0	2.2	2.3	2.3	2.3	2.3
CPI	2.9	3.5	2.8	3.1	2.0	3.1	1.9	2.8	3.8	3.3	3.7	3.2	3.1	3.0	3.0	3.0	3.0	3.0	3.0
<i>11/9/1994</i>																			
Real GDP	3.5	5.7	1.2	2.4	2.7	6.3	3.3	4.1	3.4	4.1	2.5	1.4	1.0	1.5	1.8	2.2	2.3	2.3	2.4
CPI	2.9	3.5	2.8	3.1	2.0	3.1	1.9	2.8	3.6	3.1	3.7	3.3	3.1	2.9	2.9	2.9	2.9	2.9	2.9
<i>12/14/1994</i>																			
Real GDP	3.5	5.7	1.2	2.4	2.7	6.3	3.3	4.1	3.9	5.0	3.0	2.0	1.3	1.2	1.4	1.8	2.0	2.1	2.1
CPI	2.9	3.5	2.8	3.1	2.0	3.1	1.9	2.8	3.6	2.3	3.1	3.2	3.0	2.8	2.9	2.9	2.9	2.9	2.9
<i>1/25/1995</i>																			
Real GDP	3.5	5.7	1.2	2.4	2.7	6.3	3.3	4.1	4.0	5.0	3.2	2.0	1.7	1.7	2.0	2.5	2.6	2.6	2.6
CPI	2.9	3.5	2.8	3.1	2.0	3.1	1.9	2.8	3.6	2.4	2.9	2.9	3.0	3.0	3.0	3.1	3.1	3.1	3.2
<i>3/22/1995</i>																			
	Revisions to CPI inflation																		
Real GDP	3.5	5.7	1.2	2.4	2.7	6.3	3.3	4.1	4.0	4.6	2.5	1.7	2.1	2.3	2.3	2.4	2.3	2.3	2.2
CPI	3.2	3.5	3.1	2.8	1.7	3.4	2.2	2.5	3.6	2.2	3.2	3.1	3.1	3.0	3.0	3.0	3.0	3.0	3.0

NOTE: Actual and forecast values are quarterly percent changes at annual rates; actual values are in bold.
SOURCE: Board of Governors of the Federal Reserve System.