
Interest Rate Policy

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Marvin Goodfriend's classic 1991 paper, "Interest Rates and the Conduct of Monetary Policy" was first published in the *Carnegie-Rochester Conference Series on Public Policy* more than three decades ago. It is a wide-ranging paper with an original analysis of interest rate policy that was relevant in 1991 but is even more relevant today. His analysis was informed by his experience in the Federal Reserve System as a policy adviser at the Federal Reserve Bank of Richmond. He took this unique, first-hand experience and translated it into practical monetary policy proposals in a highly thoughtful and original way.

The Goodfriend paper begins with a history of the Fed's interest rate targeting procedures that is useful for monetary economists even today. He then reviews the instrument choice problem — money versus interest rate — that had been studied in a classic article by William Poole in 1970, describing how its results carried over to a modern dynamic-rational-expectations model. He discusses the mechanics of interest rate smoothing, showing how the persistence of the federal funds rate results from the Fed's macroeconomic stabilization policy.¹ Finally, he provides evidence that the Fed implicitly had rules-based monetary policy for the interest rate during most of the 1970s and 1980s.²

In this paper, I build on the analysis of Marvin Goodfriend and examine how the Fed can better engage in a rules-based monetary policy going forward.

¹ Dotsey, Hornstein and Wolman discuss Goodfriend's (1987) modeling of interest rate smoothing in another essay in this volume.

² Athanasios Orphanides and Volker Wieland later provided a detailed confirmation of this view, stimulated by their work at the Fed to provide "Taylor Rule" memos to the FOMC starting in the mid 1990s.

Prior to the global financial crisis, policymakers within the Federal Reserve System had adopted elements of the rules-based approach to interest rate policy that I advocated in my 1993 *Carnegie-Rochester* paper. For example, during his time as president of the Federal Reserve Bank of St. Louis, William Poole used “the Taylor rule” as a guide to his thinking about policy actions to be taken in upcoming meetings and as a vehicle for explaining the Fed’s decisions to the public.³ But then there was a move away from such an explicit use as the Fed and the government more generally used a wide range of policies to deal with the Great Recession, not all of which I view as desirable.⁴

More recently, starting around 2017, the Federal Reserve returned to a more rules-based monetary policy that had worked well in the United States in the 1980s and 1990s, as Goodfriend observed. Many papers were written at the Fed and elsewhere reflecting this revival and showing the benefits of rules-based policies. In 2017, the Fed began to report on rules-based policy in its *Monetary Policy Report*, and favorable comments about rules-based policy were made by many policymakers.

One explanation for the revival was simply a revealed preference for such an approach on the part of monetary policy officials and others interested in monetary policymaking. Another explanation for the revival was the desire to figure out how to deal with the effective or zero lower bound on the interest rate that Goodfriend (2000) had highlighted earlier: there was genuine concern at the Fed about the lower bound in the case of a need for substantial easing. Another possible explanation was the disappointment with monetary policy leading to the Great Recession and especially the deviation from rules in the 2003-05 “too low for too long” period. Yet another explanation was the recognition that rules are needed to evaluate quantitative easing proposals.

³ See Poole (2007).

⁴ Taylor (2009).

The Fed began a helpful reporting approach in the July 2017 *Monetary Policy Report* when Janet Yellen was Fed chair. Each report contained the policy rate implications of five well-known rules embedding reactions to inflation and unemployment.

An interruption

However, that move toward rules-based policies was interrupted when COVID-19 hit the American economy. The Fed took a number of actions to deal with the economic effects of the severe health crisis.⁵ By most accounts, these actions were special and were not consistent with rules-based policies.

The Fed also stopped reporting on rules-based policy in its *Monetary Policy Report*. The pandemic that started in the first quarter of 2020 was a jolt to the American economy and to many other economies. It interrupted the revival of rules-based policies at the Fed and most other central banks. The actions at the Fed included a rapid reduction in the target for the federal funds rate from 1.75 percent to .25 percent during the weeks of March 2020. Both M1 and M2 measures of the money supply grew rapidly. It also included large-scale purchases of Treasury and mortgage-backed securities, causing a large expansion of the Fed’s balance sheet with assets rising rapidly from about \$4 trillion to about \$7 trillion during the second quarter of 2020 and then continuing to grow to about \$9 trillion at the end of 2021.

The Federal Reserve’s *Monetary Policy Report* after the first year of the pandemic, released on February 19, 2021, however, contained a whole section on monetary policy rules. That policy rules reentered the *Report* was a welcome development, restoring the helpful reporting approach from the July 2017 *Monetary Policy Report*. The approach continued in 2018, 2019, and early 2020, but it was dropped in July 2020.

⁵ See Taylor (2021).

Five rules were discussed in the February 2021 *Monetary Policy Report* on pages 45 through 48. To quote the *Report*, these include “the well-known Taylor (1993) rule, the ‘balanced approach’ rule, the ‘adjusted Taylor (1993)’ rule, and the ‘first difference’ rule.” In addition to these rules, there was a new “‘balanced approach (shortfalls) rule,’ which represents one simple way to illustrate the Committee’s focus on shortfalls from maximum employment.” Table 1 shows the five rules from the February 2021 *Report*. There were also five rules in the earlier *Reports*, but the February *Report* left one out and added the new balanced approach (shortfalls) rule in its place. As stated in the Fed document, this simple new rule

would not call for increasing the policy rate as employment moves higher and unemployment drops below its estimated longer-run level. This modified rule aims to illustrate, in a simple way, the Committee’s focus on shortfalls of employment from assessments of its maximum level.

Table 1. Five Policy Rules in the February 2021 Monetary Policy Report, p. 47

A. Monetary policy rules

Taylor (1993) rule	$R_t^{T93} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t)$
Balanced-approach rule	$R_t^{BA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2(u_t^{LR} - u_t)$
Balanced-approach (shortfalls) rule	$R_t^{SBA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2\min\{(u_t^{LR} - u_t), 0\}$
Adjusted Taylor (1993) rule	$R_t^{T93adj} = \max\{R_t^{T93} - Z_t, ELB\}$
First-difference rule	$R_t^{FD} = R_{t-1} + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t) - (u_{t-4}^{LR} - u_{t-4})$

Reporting rules is only a step toward systematic policy

It is good that rules were put back in the Fed’s *Monetary Policy Report*, but it would be more helpful if the Fed incorporated some of these rules or strategy ideas into its actual decisions. Apparently, this has not yet happened.

Even more troubling, as I write in March 2022, the Federal Reserve has again eliminated the table and the discussion of rules: the Fed’s *Monetary Policy Report* sent to Congress on February 25, 2022, did not

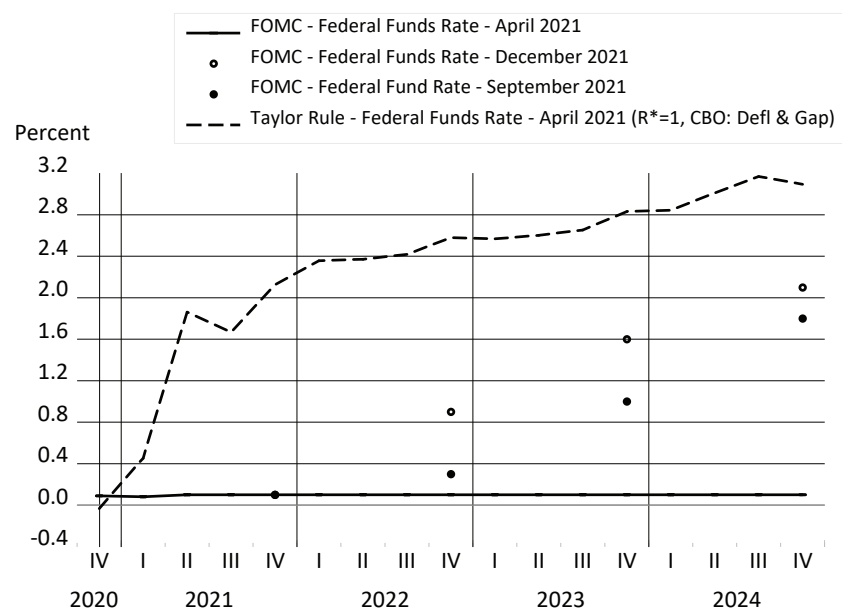
include the usual section on monetary policy rules. The Fed had included the section on policy rules in its *Reports* since July 2017, except for July 2020 during its initial response to Covid — a total of eight times going back to Janet Yellen’s term as Fed chair.

This omission was significant. It occurred at the same time that the Fed fell well “behind the curve,” and inflation has risen as a result.⁶ In fact, the removal happened as the discrepancy between standard policy rules, including the Taylor rule listed in the *Monetary Policy Report*, and actual Fed policy is as large as it has ever been. The removal thus diverted attention from this big discrepancy. Several members of Congress brought attention to this omission when Chair Powell testified on March 2 and March 3, 2022, and Powell’s answers were very important. While he did not provide reasons for the omission, in the House he answered Rep. Bill Huizenga by pledging “We’ll have it in the next one.” He then followed up accordingly with Rep. French Hill. In the Senate, Powell answered Sen. Bill Hagerty by pledging “We’ll bring them back for the July thing.”

The recent *Monetary Policy Report*’s omission masks very large differences between the rules and the Fed’s current and forecasted policies. Figure 1 shows the discrepancy. It gives the FOMC’s projection of the federal funds rate and the rules-based paths for the federal funds rate through 2024. This FOMC projection is the “value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year,” as stated in the Fed’s *Summary of Economic Projections*.

⁶ In 2013, Andrew Levin and I argued that “getting behind the curve” was central to the Great Inflation of the 1960s and 1970s.

Figure 1. FOMC Projections of Federal Funds Rate and a Policy Rule



The dashed line in Figure 1 shows the federal funds rate using the same parameters as those in the Taylor rule which is discussed in the February 2021 *Monetary Policy Report*. Note that in the *Monetary Policy Report* the Fed uses the difference between the unemployment rate (u_t) and the long-term natural unemployment rate (u_t^{LR}) rather than the output gap, and it thus modifies the coefficient on the difference to reflect the regular and related movements of the rate difference and the gap. The so-called equilibrium interest rate has been reduced from 2 percent to 1 percent. Such a reduction has been suggested at the Fed but may be larger or smaller than assumed here. The line uses the same percentage deviation of real GDP from potential GDP as in the Congressional Budget Office (CBO) report, as well as the CBO inflation forecast for the PCE. Many other economic forecasters have inflation and real GDP forecasts close to those of CBO.

Even with this smaller equilibrium real interest rate (1 percent rather than 2 percent in the original Taylor rule), the FOMC's path for the federal funds rate is well below any of these policy rules. There is a

difference in the first quarter of 2021, and the difference does not diminish over time.

There has been little mention of why the discrepancy exists between the Fed's projections and the rules. Does this mean the Fed will actually keep the rate so low under these circumstances regarding real GDP and inflation? Will it then raise the rate sharply in 2023 or 2024?

An optimal reentry

The policy rule parameters, even with the full percentage point lower real equilibrium real interest rate, may not adequately reflect the results of the Fed's position and the new flexible average inflation rate concept. To consider these alternatives and thereby come closer to the new "flexible form of average inflation targeting" policy of the Fed, we also consider the formulation of policy rules by David Papell and Ruxandra Prodan (2021) in a recent paper.

Papell and Prodan (2021) consider a Taylor rule with shortfalls and a balanced approach rule with shortfalls as introduced in the *Monetary Policy Report*. In both cases, they consider the unemployment rate relative to the long-run level rather than the GDP gap. For the Taylor (shortfalls) rule and the balanced approach (shortfalls) rule, they replace the difference between the unemployment rate in the long run and the actual unemployment rate with the minimum of that difference and 0. In other words, the focus is on the shortfall of unemployment from the long-run value rather than the deviation. Thus, if the unemployment rate is 3.5 percent and the long-run level is 4.0 percent, the interest rate is not raised as it would be in the rules without shortfalls. That is, zero is the minimum of .5 percent ($=4.0-3.5$) and zero. This is as in the balanced approach (shortfalls) rule in the *Monetary Policy Report*.

Papell and Prodan (2021) observe, however, that this adjustment does not fully reflect the changes in policy strategy made by the FOMC. They therefore also consider another adjustment that results in the Taylor (consistent) rule and the balanced approach (consistent) rule. This second adjustment defines the unemployment rate consistent with maximum employment to be 3.5 percent rather than

4.0 percent and also assumes an inflation rate that is moderately above the target inflation rate. For example, if the target inflation rate is 2 percent, then they use a moderate inflation rate of 2.2 percent, using a numerical example of Clarida (2021). This means the Fed would not adjust the interest rate simply because the inflation rate was 2.0 or 2.1 percent; rather, it would watch for inflation going above 2.2 percent.

Papell and Prodan (2021) consider the behavior of the shortfalls and the consistent rules over recent history using the actual historical values of the unemployment rate, the inflation rate, and the federal funds rate. It is helpful to look at the behavior of the rules going into the future using forecasts of unemployment and inflation and comparing that with the FOMC's stated path for the interest rate. They look at the period from the fourth quarter of 2020 through the fourth quarter of 2023. It is also assumed that the equilibrium real interest rate is .5 percent rather than 1 percent, which reduces the interest rate.

Papell and Prodan also consider the Taylor rule, including the regular, shortfalls, and consistent rules, along with the FOMC path for the federal funds rate, using a lower equilibrium real interest rate of .5 percent in these rules. The interest rate from the rules rises as the inflation rate is forecast to rise and the unemployment rate is forecast to fall. The balanced approach and the balanced approach (shortfalls) rule are the same through the third quarter of 2022.

Looking out into the period in 2022 and 2023, a sizable gap emerges. That gap rises to 2.4 percent in the fourth quarter of 2022 and 2.8 percent in the fourth quarter of 2023. Also consider the balanced approach (regular, consistent, and shortfalls) rule. There is little difference in the later years with the average difference between the rule and federal funds rate being 3 percent in 2023Q4, compared with 2.8 percent and 2.7 percent with the Taylor rules. But the balanced approach rules rise faster. Thus, it indicates that the policy rate could be held low through the fourth quarter of 2021. But even in this case, an adjustment is warranted; perhaps for this reason, in the first quarter of 2022 the Fed began to signal higher rates by the end of 2022. In its March 16, 2022, *Summary of Economic Projections*, the Federal Open Market Committee reported that the “the value of the midpoint of the

projected appropriate target range for the federal funds rate or the projected appropriate target level” would be 1.9 percent by the end of 2022. But this is still low, and even lower if one adjusts the rule-based path upward for the federal funds rate to take account of higher inflation rates observed in 2022.

To summarize, the analysis of optimal reentry takes into account the shortfalls of unemployment rather than deviations and focuses on the average inflation rate by looking at moderate inflation rates slightly higher than the long-run target inflation rate. Nevertheless, the results are similar to what was found by looking at the regular Taylor rule. The results can be usefully summarized by looking at the average gap in percentage points between the FOMC interest rate and the settings of the three rules with modifications.

Conclusion

This paper has examined a return to a rules-based monetary policy in the United States and has outlined methods to do so. By reviewing the years leading up to the present monetary situation, it provides the background for analyzing current and future monetary policy decisions.

The results indicate that the Fed should now engage in a strategy or rule in which people and markets understand how it will adjust its policy interest rate if economic growth increases and inflation stays high as it is now forecast to do. It would of course be a contingency plan as all rules and strategies should be. By having clearly stated a shortfalls policy rule in its February 2021 *Monetary Policy Report*, the Fed has prepared for such a strategy in practice. Explaining how its policy rule or strategy would be consistent with its flexible average inflation targeting would further clarify the Fed's monetary policy and facilitate the market adjustment when it takes place. It would remove uncertainty and remaining inconsistencies. The changes in the Reports have not yet affected actual monetary policy decisions, and there is evidence of a big difference between the rules-based policy and the actions of the Fed.

By any measure it is time for reentry.

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