# The Case for a Monetary Policy Reference Rule: Theory and Practice[*]

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## Introduction

We applaud Kevin Warsh's (2026*a*, p.2) first move as Federal Reserve Chairman, creating five task forces to critically examine "areas that are central to the broad conduct of monetary policy."

Judged by its process, Chairman Warsh's new approach improves significantly on the Federal Reserve's 2025 Framework Review, which, as Cutsinger, Ireland, and Luther (2026) document, consulted with outside experts only *after* key decisions had been made internally and failed to seriously consider what lessons should be learned from the post-2020 surge in inflation. In contrast, Warsh (2026*a*, p.3) explains:

> For each of these independent task forces, I'm enlisting some of the very best minds – both inside and outside the economics profession. … And they will have a straightforward charge: Start with first principles; ask hard questions; examine current practice; consider alternatives; and, ultimately, propose next steps for policymaker consideration.

In terms of outcomes, of course, the task force recommendations remain to be seen. In our own view, however, the single most valuable one would be for the Federal Open Market Committee (FOMC) to select and publicly announce what, here, we call a "monetary policy reference rule." This rule would serve as the starting point for all future meeting-by-meeting

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interest rate deliberations. And it would work as a powerful communications tool by which the Chairman and other Committee members could much more easily and much more clearly describe and defend current and expected future monetary policy actions in their post- and inter-meeting public statements. Importantly, it would allow the Committee to retreat from the current method of providing forward guidance via "dot plot" projections of most likely policy rate paths in the Summary of Economic Projections (SEPs). It would help achieve Chairman Warsh's (2026*c*, p.5) goal of putting "communications … in service to the Fed's paramount responsibility: getting monetary policy right."

As explained below, we choose our preferred term, "monetary policy *reference* rule," to help dispel a popular misconception: that a *rule-based* approach to policymaking requires the central bank to adhere mechanically to the prescriptions of the chosen rule. Chairman Warsh (2026*c*, p.7) summarized this popular view in his remarks at the Jackson Hole Symposium this past August:

> I wish our understanding of the economy were so precise as to provide a mechanical, tried-and-true answer – that some simple function like a Taylor rule could be rigorously relied on. But our knowledge just doesn't extend that far – at least not yet – and the factors more relevant to the proper conduct of monetary policy change over time.

In response, we respectfully but firmly re-emphasize a crucial point made previously by Lacker and Plosser (2024, pp.355-56):

> The notion that making use of monetary policy rules requires handing over interest rate settings to a specific algebraic formula for setting the federal funds rate is a straw man. In the current circumstances, such a claim serves to preserve discretion and evade discussion of the magnitude of policy tightening that is likely needed to restore price stability. The FOMC could make much greater use of a range of monetary policy rules in public commentary about future policy without turning the federal funds rate over to an algorithm. The goal would be not to make pinpoint promises about the future path of rates but to convey likely paths, the associated uncertainty, and dependence of the path on the evolution of the economy.

The specifics of our case for a monetary policy reference rule rest on both theoretical and practical considerations. We lay out the arguments in the next three sections, then present a new case study that culminates with our assessment of what a rules-based approach says about the stance of monetary policy today and the likely direction of monetary policy going forward.

**Monetary Policy Rules in Theory**

Salter (2017) skillfully outlines the most common theoretical arguments for conducting monetary policy with reference to a pre-announced rule. Even when the central bank has full information about the structure and state of the economy, and even when the central bank's objectives align perfectly with those of society as a whole, precommitment to a monetary policy rule can alleviate the time consistency problem famously described by Kydland and Prescott (1977).

The time consistency problem arises when the central bank perceives itself as able to lower the rate of unemployment by creating surprise inflation. Private agents – also in possession of full-information rational expectations – understand that the central bank faces this temptation to inflate and build the effects of that inflation into their price and wage-setting decisions. In equilibrium with discretion, therefore, unemployment is no lower than it would otherwise be, but inflation is suboptimally high. Conversely, by precommitting to a monetary policy rule, the central bank secures a more favorable outcome, in which unemployment is no higher than it would otherwise be while inflation stays low.

Salter (2017) strengthens the case for rules over discretion by relaxing the two strong assumptions – that the central bank has full information and objectives that align perfectly with the public's – imposed for the sake of argument by Kydland and Prescott (1977). First, when the central bank lacks perfect knowledge about the structure or state of the economy, commitment to

a rule can help guard against mistakes and better coordinate private-sector expectations. Second, when political or private interests cause the central bank's objectives to deviate from those of society as a whole, commitment to a rule can help mitigate these conflicts of interest.

Our own theoretical arguments for rules over discretion complement, but differ from, Salter's (2017). They build most closely on Lucas' (1980, p.205) observation that

> The main argument [ for rules over discretion ] turns out to be a positive (as opposed to normative) one: our ability as economists to predict the responses of agents rests, in situations where expectations about the future matter, on our understanding of the stochastic environment agents believe themselves to be operating in. In practice, this limits the class of policies the consequences of which we can hope to assess in advance to policies generated by fixed, well understood, relatively permanent rules (or functions relating policy actions taken to the state of the economy).

In other words, simply understanding the economy, in a dynamic and uncertain world, requires thinking of policy *not* as a sequence of realized policy actions, but as a pattern "relating policy actions taken to the state of the economy"—that is, as an entire *reaction function*, or *rule*. In a dynamic, stochastic environment, the choices made by consumers and firms inevitably reflect their beliefs about policy actions across the full array of future contingencies. Scientific observers, doing their best to comprehend the workings of a modern economy, are *forced* to think of economic policy in terms of "relatively permanent rules."

This insight, perhaps the most fundamental to emerge from the 1970s revolution in macroeconomic theory, has strong implications for both the conduct of monetary policy and how a central bank communicates. The fact that the appropriate object of analysis is a policy reaction function or rule holds no matter what the central bank says or does not say about its future policy conduct. A central bank may scrupulously avoid mention of any particular policy rule and may deny their relevance to policy making, but households and financial market participants of necessity will form some idea of how policy will respond to future circumstances. Thus, there is

always a policy rule, whether or not the central bank says anything about it. It follows that a central bank's communications about future policy would be better framed by acknowledging this fact and referring to a rule, rather than referring to a sequence of future choices viewed as most likely given future events.

**First Principles**

Following Chairman Warsh's (2026*a*, p.3) rubric, we can build on Lucas' (1980) ideas by tracing them back to the "first principles" articulated by Stokey and Lucas with Prescott (1989, pp.5-6). Surely, monetary policy decisions get made in a dynamic, stochastic environment. The central bank faces intertemporal trade-offs when considering, for example, that holding interest rates lower might reduce unemployment today at the expense of increasing inflation in the future. Meanwhile, unanticipated shocks of many kinds will also affect the rates of unemployment and inflation – and therefore change the appropriate setting for policy rates – looking out into an uncertain future.

In such an environment, optimal choices – whether made by consumers, firms, or policymakers – inevitably take the form of contingency plans: a detailed enumeration of each and every distinct action that will be taken following each and every distinct "history of shocks that have been realized up to the time the decision is actually implemented" (Stokey and Lucas with Prescott 1989, p.6). Describing choices in this way sometimes can be useful, but more often feels overwhelmingly tedious and cumbersome, whether to the decision-maker actually solving the problem or the economic analyst studying the decision-maker's problem.

As a particularly relevant example, consider the FOMC's own SEPs, to which for his own reasons Chairman Warsh (2026*a,* p.2) objects and declines to contribute. Bernanke (2025, p.2) clearly identifies both the problem and solution by noting:

> A particularly important drawback of the projections is that, by construction, they focus the public's attention on what each participant sees as the *most likely* future path for the economy and policy, unhelpfully downplaying the large role of forecast uncertainty in policymaking. … [E]xcessive emphasis on the baseline (modal) outlook impedes the ability of policymakers to discuss risk management considerations, to offer contingent forward guidance (or no forward guidance at all), or shed light on the Committee's reaction function – that is, how policy would respond if the economy were to take an unexpected turn.

Yes, the SEPs could be expanded to discuss a wider range of contingencies on either side of the mode. But even then, they would remain incomplete. A much better approach would be to re-organize them according to Bernanke's last suggestion around a reaction function, that is, a pre-announced monetary policy reference rule.

By announcing a reference rule, the FOMC would exploit a powerful insight first developed by Richard Bellman (1957) by describing their contingency plan in a far simpler, recursive form. Bellman's "dynamic programming" approach starts by summarizing economic conditions using a collection of "state variables." For the Federal Reserve with its dual mandate, these variables would include – but not necessarily be limited to – the current or expected future rates of inflation and unemployment (or the output gap as an alternative measure of resource utilization). The reaction function or policy rule would reflect conventional wisdom: that rising inflation and/or falling unemployment would call for increases in the federal funds rate, while falling inflation and/or rising unemployment would call for decreases in the federal funds rate. But it would go further in its specificity by indicating quantitatively the anticipated magnitude of the interest rate adjustments required in every future "state of the world," that is, in any future contingency.

Stokey and Lucas and Prescott (1989) and Ljungqvist and Sargent (2018) present many examples where this recursive approach turns out to be invaluable for researchers characterizing optimal decision-making under uncertainty in all areas of macroeconomics. The recursive approach would be just as valuable for decision-makers at the Fed. After announcing a monetary policy reference rule, there would be little need for forward guidance in the FOMC's policy statements, for tedious and cloying question-and-answer sessions at post-meeting press conferences, or for forecasts in the SEPs. There would in fact be no need for the Chairman or other FOMC members to speculate publicly about the future path of monetary policy at all. During normal times – that is, outside of exceptional times of crisis – the rule would do all the work. It would also deflect attention from the endless debate about whether the current policy setting is "accommodative," "neutral" or "restrictive," a perspective more suited to a sequence of static policy problems. It would fully describe how the Committee expects to systematically adjust the federal funds rate in the future so as to successfully fulfill its dual mandate.

One final point of nuance is called for, more than 45 years after Lucas (1980) first made his positive argument for rules over discretion. Sims (1988) and Leeper and Zha (2003) argue that the outcomes of many routine, meeting-by-meeting interest rate decisions *can*, in fact, be adequately described as one-time shocks to the equation in a statistical model (usually a vector autoregressive time series model, or VAR) that represents the Federal Reserve's monetary policy rule, as opposed to changes in that monetary policy rule itself. The statistical model can then be used to accurately forecast the effects of those decisions. We admit to finding these arguments persuasive. At the same time, however, we would also emphasize that identifying monetary policy shocks in this way requires, first and foremost, that the statistical model's monetary policy rule be correctly specified. Monetary policy actions, even of the kind considered by Sims,

Leeper, and Zha, can only be described with reference to a monetary policy rule, in Lucas' exact words, a function "relating policy actions taken to the state of the economy."

**Monetary Policy Rules in Practice**

Since its beginnings in 1973, the Shadow Open Market Committee (SOMC) has advocated for a rules-based approach to monetary policymaking. But what are the essential features of a suitable monetary policy rule? And can a simple rule really be trusted in conducting monetary policy successfully? These are the practical questions we turn to now.

Ireland (2025) describes in detail exactly how and why the SOMC's views on the optimal monetary policy rule have evolved considerably over the decades. Throughout the 1970s, the very early SOMC recommended a monetary policy rule similar in two key respects to Milton Friedman's (1960) constant money growth rule: (1) the rule specified a target for the growth rate of a narrow monetary aggregate – either the monetary base or M1 – rather than an interest rate like the federal funds rate and (2) the rule was completely unresponsive to changing economic conditions. The SOMC's stated money growth target did vary over time, but only in an effort to bring inflation back down from its 1970s heights gradually along a pre-announced path. Like Friedman's, the SOMC's rule made absolutely no attempt at active stabilization.

Later in the 1980s, however, financial and regulatory innovations produced shifts in monetary velocity too large to completely ignore. Meltzer (1987) and McCallum (1988) then proposed feedback rules that adjusted the targeted rate of money growth – still measured by changes in the monetary base – adaptively in response to observed movements in velocity. And by the early 1990s, SOMC position papers and policy statements began to refer to John Taylor's (1993) interest rate rule for monetary policy as well.

The SOMC's openness to considering a rule for the federal funds rate came largely through the influence of Bennett McCallum, whose earlier academic work (McCallum 1981) clarified the monetarist critique of interest rate rules by showing that they could be consistent with price level determinacy *if* they prescribed a sufficiently vigorous response of the interest rate to changes in money growth or inflation. An SOMC position paper by Robert Rasche (1992, p.98) recognizes this point explicitly:

> The singular distinction between the present funds rate operating procedure and that of the 1970s is that the current FOMC appears to be much more aggressive about implementing changes in the funds rate target, and hence the operating procedure is not characterized by the inertia of the 1970s.

Linking McCallum (1981) and Taylor's (1993) earlier insights, Woodford (2003, p.91) identifies "the Taylor principle – that the central bank should raise its interest-rate instrument *more than one-for-one* with increases inflation" as an essential feature of a successful interest rate rule.

Today, item 4 on the SOMC's (2015) statement of "Core Beliefs" reads

> Monetary policy should be conducted in a rule-like manner and be somewhat countercyclical with respect to output and employment, as long as price stability over the long run is not compromised. We expect the central bank to announce the policy rule that it follows so that it can be monitored and held accountable.

The Taylor (1993) rule satisfies these basic requirements. Woodford (2003, pp.610-19) shows that the Taylor rule, though not necessarily *the* optimal policy rule, does share many of the same basic features of optimal monetary policy rules in contemporary state-of-the-art dynamic and stochastic general equilibrium (DSGE) New Keynesian models. Taylor (1999*a*) likewise documents that the rule delivers good performance across a wide range of theoretical specifications. Finally, the original Taylor (1993) rule is one of four variants discussed routinely in the Federal Reserve Board's Semi-Annual Monetary Policy Report to Congress (see, e.g., Board of Governors of the Federal Reserve System 2026, pp.42-44). We remain open to

alternatives (and will in fact suggest one such alternative below) while repeating for emphasis the point that is absolutely key: we expect the FOMC to announce the policy rule that it follows so that it can be monitored and held accountable.

As argued above, announcing and making consistent reference to the Taylor rule would provide the public with a full and complete description of the central bank's contingency plan – an object too complex to describe without resort to this "recursive method." It allows the FOMC to "steer clear" of making point forecasts that are bound to be inaccurate – consistent with Chairman Warsh's (2026*b*, p.1) strong preference. And to the extent that the FOMC follows the rule closely, it eliminates the need for the Chairman or any individual member to say or do anything else at all – providing enormous relief to both them and the public!

At risk of excessive repetition, we emphasize once again: the rule does not need to be followed mechanically. But the rule's prescription should serve invariably as the starting point for meeting-by-meeting FOMC deliberations as well as post- and inter-meeting communications with the public. As Lacker and Plosser (2024, p.365) point out: "Such references would not constitute rigid commitments but would be more informative to markets and the public than the subjective, discretionary, 'trust me' approach that largely describes current practice." And if, in FOMC member's judgment, circumstances dictate a deviation from the simple rule, they should be able to clearly explain why. With all these considerations in mind, we prefer the term "monetary policy *reference* rule," despite its longer length. Even if the rule is not followed exactly, it should be a consistent reference point.

And along exactly these lines, it should also be noted: Taylor (1993, pp.210-13) presents two case studies – highly relevant both in general and with specific reference to present circumstances – describing circumstances in which a central bank might reasonably deviate from

the prescriptions of his rule. The first is when large changes in oil prices, driven by supply disruptions from global hostilities, temporarily increase headline measures of inflation. The second is when long-term bond yields rise, not because of an increase in expected future inflation but in response to structural economic changes that increase the demand for investment and thereby raise real rates of interest. In each case, a central bank may wish to hold policy rates steady, thereby departing from the strict prescriptions of the rule, while emphasizing that over the longer term, its future decisions will continue to be guided by the rule.

But can monetary policy conducted according to a rule really outperform what is feasible under discretion? As Friedman (1953) makes clear, this is ultimately an empirical question, not a theoretical one. And experience comes down strongly in favor of rules.

Friedman's (1960) own constant monetary growth rule is unlikely to constitute optimal monetary policy in any existing DSGE model. Yet closer adherence to that rule would surely have prevented or at least ameliorated the two biggest economic disasters of Friedman's lifetime: the Great Depression of the 1930s and the Great Inflation of the 1970s. Likewise, as Woodford (2003, pp.610-19) admits, the Taylor rule departs from optimal monetary policy in important ways, most significantly by measuring potential output with a smoothly-evolving trend, when modern macroeconomic theory suggests the natural rate of output may vary considerably, even at high frequencies (see Ireland 2026*a* for further discussion of this point). Yet, Taylor's (1999*b*, 2012) historical comparison of episodes where Federal Reserve policy did and did not adhere closely to the prescriptions of his rule correspond closely to periods of successful and unsuccessful policymaking, respectively. Summarizing both his own work and Milton Friedman's, Taylor (2012) puts it bluntly but accurately: "monetary policy rules work and discretion doesn't."

**A New Case Study**

Here, we extend Taylor's (1999*b*, 2012) research with a new case study of our own. The two panels of Figure 1 compare the actual federal funds rate to the rate prescribed by the Taylor (1993) rule over the period from 2000 quarter 1 through 2026 quarter 2. The specific implementation of the rule we choose sets the funds rate target as

$$R = r^* + \pi^* + 1.5(\pi - \pi^*) + 0.5(y - y^*),$$

where $r^* = 1$ is the natural real rate of interest, $\pi^* = 2$ is the Federal Reserve's inflation target, $\pi$ is inflation measured by year-over-year percentage changes in the price index for personal consumption expenditures, $y$ is 100 times the natural logarithm of real GDP, and $y^*$ is 100 times the log of potential real GDP as measured by the Congressional Budget Office, so that $y - y^*$ is the output gap measured, like the interest and inflation rates, in percentage points. All of the quarterly data used in this exercise are from the Federal Reserve Economic Database (FRED) maintained by the Federal Reserve Bank of St. Louis.

We have qualms, especially about measuring the natural rate of output with a smooth trend as the CBO's estimate does, but also with treating the natural rate of interest as constant and equal to one percent and even including a separate term for the output gap in the rule to begin with. Still, we make these assumptions cheerfully to prove our point: a monetary policy reference rule doesn't have to be perfect for anyone in order to be useful to everyone. Uncertainty over these and other important issues in macroeconomics is unlikely to be resolved anytime soon, but that need not stand in the way of effective use of a reference rule. Having said that, should policymakers wish to employ refined, time-varying estimates of the natural rates of output and interest, they should do so in a manner that is transparent and based on robust and

convincing research evidence, in order to avoid the perception of cherry-picking specifications to support pre-determined policy predilections.

Hindsight is always 20/20, of course. But comparison between the actual and prescribed federal funds rate in Figure 1 supports Taylor's (2012) argument that monetary policy was inappropriately expansionary from 2003-06, potentially contributing to the build-up of risks that culminated in the 2008 financial crisis. The same comparison lends some support, as well, to Hezel's (2026) claim that the FOMC erred by holding the federal funds rate constant even as the economy began to weaken throughout the spring, summer, and early fall of 2008.

The graphs also show that the zero lower interest rate bound (ZLB) prevented monetary policy from being fully and appropriately accommodative during each of the last two recessions, for all of 2009 and again, though much more briefly, in 2020Q2. Now overshadowing both of these ZLB events, however, is the massive deviation of the federal funds rate from the prescriptions of the Taylor rule in 2021 and 2022, which fueled the inflationary surge that still plagues us today. Lacker and Plosser (2024) and Papell and Prodan-Boul (2024) describe in great detail how closer adherence and more consistent reference to a Taylor rule would have helped the FOMC greatly, both in choosing more appropriate monetary policy actions and communicating the rationale for those actions to the public, throughout the post-2020 turmoil. These accounts reinforce even more strongly Taylor's (2012) basic message. The rule works; discretion doesn't.

Presently, the Taylor rule indicates that while Federal Reserve policy remained close to neutral, though still slightly restrictive, through the first quarter of 2025, since then it has turned accommodative – and increasingly so. Strikingly, the rule now calls for a federal funds rate target between 6 and 6 1/4 percent, well above the actual range between 3 3/4 and 4 percent.

Figure 2 plots the two determinants of the Taylor rule's prescription: the inflation rate and the output gap. The figures confirm that with growth in real GDP running in close alignment with growth in potential, it is the marked acceleration in headline PCE inflation that is driving the rule's call for tighter monetary policy.

Exactly as in the first case study presented by Taylor (1993, pp.210-12), at least some of this recent rise in measured inflation reflects the temporary effects of higher oil prices caused by disruptions in supplies from the Middle East. With appeal to these special factors, the FOMC may be justified in its patience, raising interest rates only gradually while acknowledging that additional monetary tightening – potentially implemented through a mix of balance sheet reductions and interest rate increases, depending of the conclusions of Chairman Warsh's taskforces – may be needed later this year and into next if the trend towards higher inflation doesn't reverse itself soon.

Pushing further exactly along these lines, McCulloch (2026) uses time-series methods to infer the underlying rate of "entrenched inflation" that will prevail in the long run, after the effects of higher oil prices and other non-monetary shocks wear off. His measure of entrenched inflation now runs at 3.3 percent, noticeably lower than the 3.6 percent year-over-year PCE inflation rate shown in Figure 2. Even so, using the same Taylor rule variant described above, that adjusted rate of inflation calls for a federal funds rate target between 5 1/2 and 5 3/4 percent. And using McCulloch's own preferred version of the rule, with a smaller setting of $r^* = 0.50$ for the natural real rate of interest and a policy response to inflation alone, excluding the output gap, the funds rate should still be between 4 1/4 and 4 1/2 percent – 50 basis points higher than it is today.

Meanwhile, other more direct measures of growth in aggregate demand send the same message of caution. Beckworth and Horan (2024) and Ireland (2026*b*) explain how nominal GDP growth can be a particularly useful indicator of the stance of monetary policy in the face of recurrent shocks hitting the economy from the supply side. Because these shocks tend to decrease output growth even as they increase inflation, they have a muted effect on nominal GDP growth as their sum. Beckworth and Horan (2024) call this the "two-for-one deal:" by targeting a rate of nominal GDP growth equal to two percent plus the trend rate of real GDP growth, the Federal Reserve would hit its inflation target in the long run while successfully "looking through" the purely transitory effects of adverse supply shocks on inflation.

Over the years, our SOMC colleague Athanasios Orphanides (2003, 2019, 2025) has developed a "natural growth targeting" rule that secures the two-for-one-deal offered by nominal GDP targeting while also addressing several other challenges associated with implementing the Taylor rule's prescriptions in practice. Although the SOMC no longer has a consensus rule, the two of us join with Athanasios in advocating for it. And while we understand that FOMC members may find comfort in their greater familiarity with the Taylor rule – and would fully support their choice of a Taylor reference rule with this in mind – we strongly encourage them to consider the Orphanides rule as an alternative.

The Orphanides (2025) rule takes the form

$$\Delta R = 0.5(N - N^*),$$

where $\Delta R$ is its prescribed *change* in the federal funds rate, $N$ is the median forecast for nominal GDP growth over the year ahead, taken from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters (SPFs), and $N^*$ equals the two-percent inflation target plus the

median forecast of average annual real GDP growth over the next ten years, also taken from the SPFs.

Since its prescribed policy response depends on nominal GDP growth, the Orphanides rule avoids over-reacting to changes in inflation driven by adverse supply shocks, which, as noted above, will also tend to slow real GDP growth. And by offering its prescriptions for the change, as opposed to the level, of the federal funds rate, the Orphanides rule – like the similar "first difference rule" that is also presented in the Semi-Annual Monetary Policy Report to Congress (Board of Governors of the Federal Reserve System 2026, pp.42-44) – side-steps any need to estimate the natural rates of interest $r^*$ and output $y^*$. Instead, through its measure of $N^*$, which depends only on a slow-moving estimate of the economy's long-run growth rate, the rule seeks to maintain the rate of nominal GDP growth that is consistent with long-run inflation of 2 percent. Most significantly, however, the Orphanides rule is "operational" in a way that both the Taylor rule and the Fed's own first-difference variant are not. This is because the year-ahead nominal GDP growth forecast $N$ and the ten-year average real GDP forecast $N^*$ are available in "real time" from the Philadelphia Fed's database when the FOMC makes its decisions on the setting for its federal funds rate target, whereas data on inflation and real GDP (or unemployment) needed by the Taylor rule and the Fed's first-difference rule become available with a significant lag.

The two panels of Figure 3 reproduce and extend those shown in Orphanides (2025, Figure 6, p.1433). Looking back over the two decades before 2020, the Orphanides rule tracks the actual funds rate more closely than does the Taylor rule show in Figure 1. Nevertheless, the Orphanides rule agrees strongly with the Taylor rule that Federal Reserve policy was badly

miscalibrated in holding the funds rate at zero while inflation and nominal GDP growth accelerated rapidly in 2021-22.

And, like the Taylor rule, the Orphanides rule is now calling for additional increases in the federal funds rate to bring inflation back down to target. The changes prescribed by the Orphanides rule, however, are more modest. Specifically, the most recent SPFs supply a forecast of year-ahead nominal GDP growth equal to 4.8 percent and a forecast of ten-year-ahead real GDP growth of 2.1 percent. The resulting difference between $N$ and $N^*$ equal to 0.7 then requires, according to the rule, an upward adjustment of the funds rate of 0.35 percent. By focusing on expected nominal GDP growth instead of measured inflation, therefore, the Orphanides rule provides support for the FOMC consensus revealed through the latest SEPs (Federal Open Market Committee 2026): that only one or two additional 25-basis-point increases in the funds rate might suffice to bring inflation back to target.

As Ireland (2026*b*) goes on to explain, focusing on nominal GDP growth also provides a monetarist cross-check against monetary policy analyses conducted using the Taylor rule or with reference to interest rates more generally. In particular, the equation of exchange $MV = PY$ equates the growth rate of nominal GDP, $PY$, to the growth rate of the velocity-shift adjusted monetary aggregate $MV$. This insight reminds us to consult the growth rates of a broad monetary aggregate as a final indicator of the stance of monetary policy.

This is done in Figure 4, which plots the year-over-year growth rates of both the Federal Reserve's official M2 aggregate and the Center for Financial Stability's Divisia M2 index described by Barnett, Liu, Mattson, and van den Noort (2013). After surging in 2020-21, confirming the inflationary warning signs sent just as obviously by the huge deviations from either the Taylor or Orphanides rules illustrated in Figures 1 and 3, both measures of money

showed outright contraction during 2023-24, as the Federal Reserve's belated monetary tightening finally began to bring inflation down. Most recently, however, money has rebounded. Its growth rate, computed with monthly data ending August 2026, now stands at 5.7 percent when computed with the Fed's M2 measure, up from 4.2 percent one year ago, and 6.0 percent, up from 4.1 percent a year ago, when computed with the CFS's Divisia M2 aggregate. These numbers are too high and moving in the wrong direction. When used as a cross-check, they confirm the message from both the Taylor and Orphanides rules, indicating that additional monetary tightening is needed to bring inflation back down to the 2 percent target.

**Conclusion**

As Lacker (2020), Lacker and Plosser (2024), and Hetzel (2026) ruefully observe, Federal Reserve policymakers have always resisted calls to abandon discretion in favor of rules, despite the heavy weight of arguments, both theoretical and practical, supporting the latter. Neither the persistent deflation of the 1930s nor the persistent inflation of the 1970s could have occurred under Milton Friedman's (1960) constant money growth rule. And similarly, much of the inflation that has plagued us since 2021 would have been avoided under either John Taylor's (1993) or Athanasios Orphanides' (2025) interest rate rule.

While we lament this history of repeated discretionary failures, we share Hetzel's (2026) optimism that the creation of Chairman Warsh's new task forces offers an "opportunity, perhaps once in a lifetime … for fundamental reform" through the adoption of a specific monetary policy reference rule. In the meantime, it seems hard to escape the conclusion of our own, rules-based analysis. It points to the likely need for additional monetary tightening later on this year and into next.

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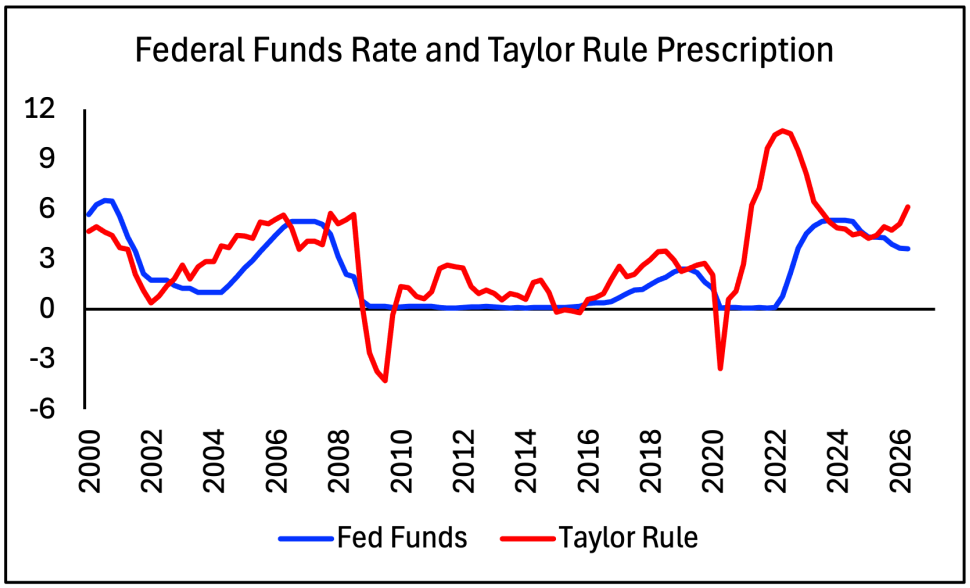
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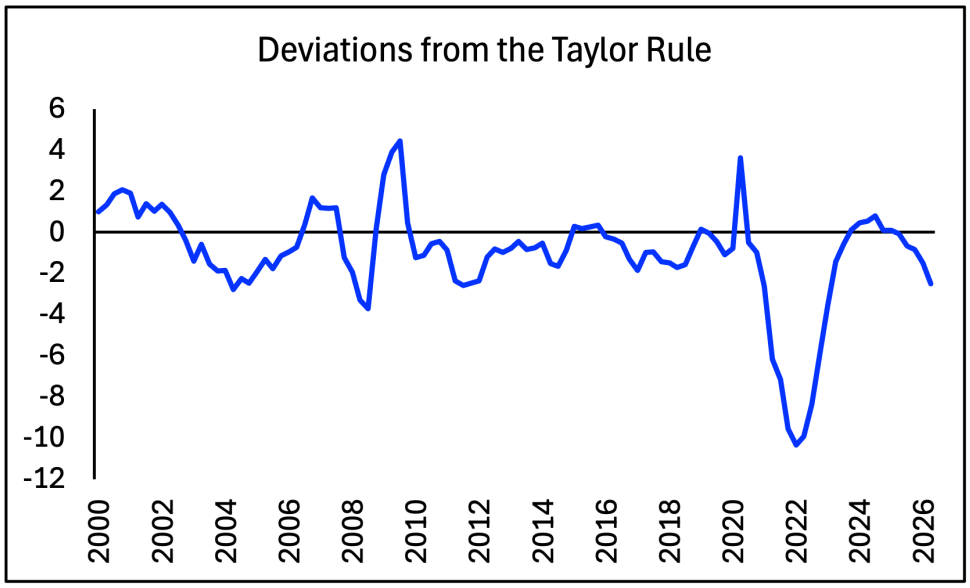




Figure 1. The Federal Funds Rate versus the Taylor Rule Prescription. The top panel compares the actual (effective) federal funds rate (blue line) to the rate prescribed by the Taylor (1993) rule (red line) implemented as described in the text. Both rates are measured in annualized percentage points. The bottom panel plots the percentage-point difference between the actual and prescribed rates, showing positive readings during periods when the federal funds rate exceeded the prescriptions of the rule and negative readings during periods when the federal funds rate was held below the rate prescribed by the rule. The data used in this comparison run from 2000 quarter 1 through 2026 quarter 2 and are drawn from the Federal Reserve Bank of St. Louis' FRED database.

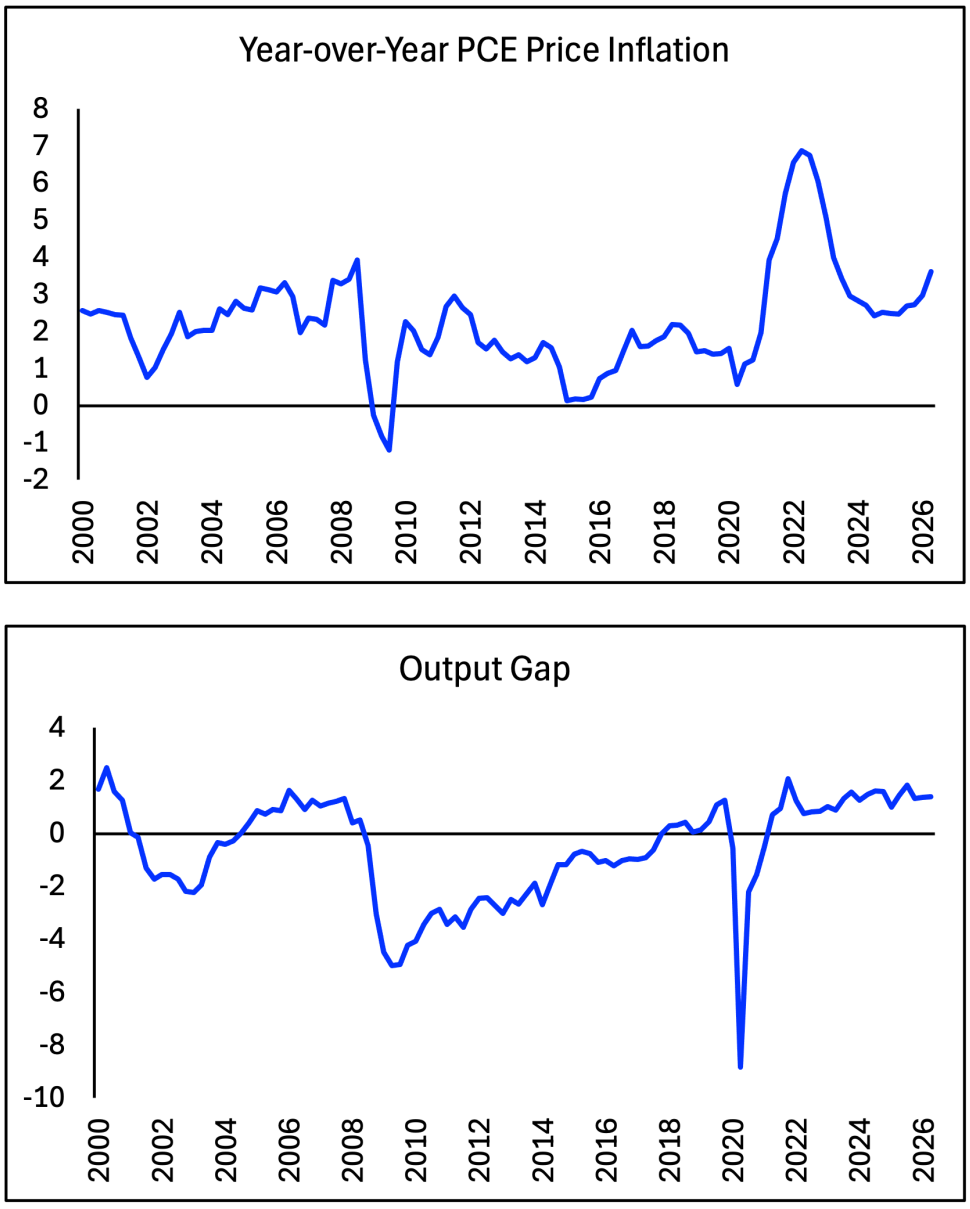
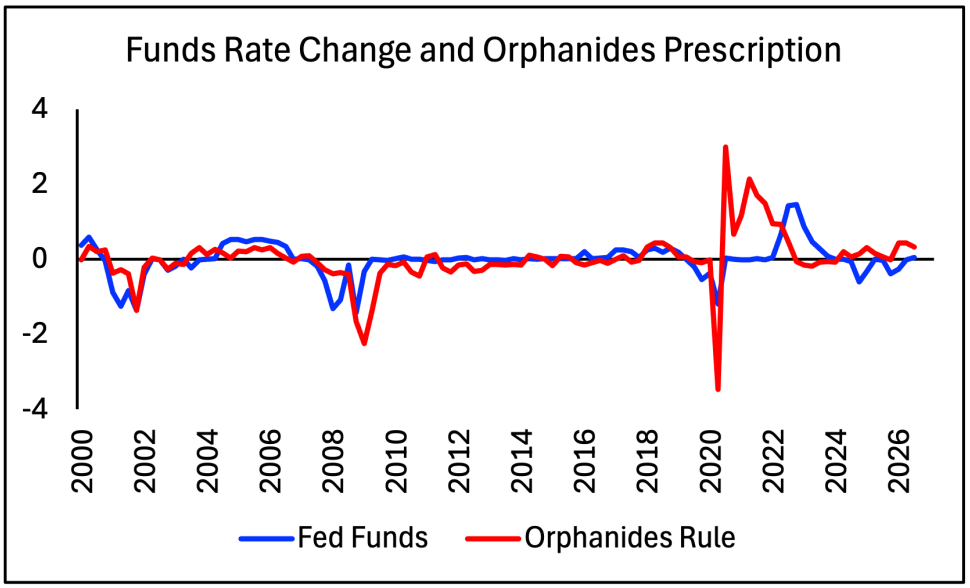



Figure 2. Taylor Rule Inputs: The Inflation Rate and the Output Gap. The top panel plots inflation, measured by year-over-year percentage changes in the price index for personal consumption expenditures. The bottom panel plots the output gap, measured as the percentage-point difference between actual real GDP and the Congressional Budget Office's estimate of potential real GDP. All data run from 2000 quarter 1 through 2026 quarter 2 and are from FRED.



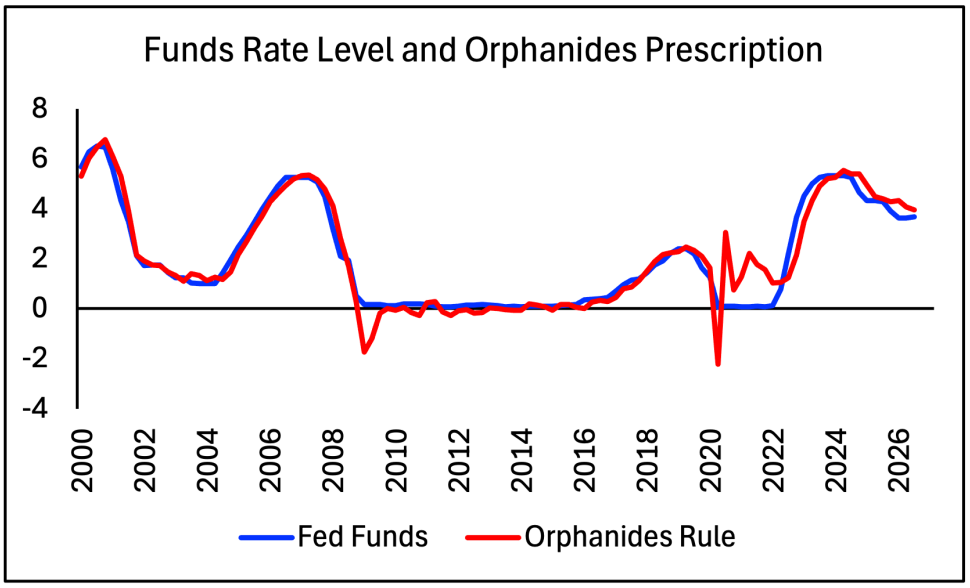




Figure 3. The Federal Funds Rate versus the Orphanides Rule Prescription. The top panel compares changes in the actual (effective) federal funds rate (blue line) to those prescribed by the Orphanides (2025) rule (red line) implemented as described in the text. The bottom panel compares the level of the actual federal funds rate to the level for the rate implied by the Orphanides rule, computed by adding the change from the top panel to the actual funds rate from the previous quarter. The data used in these comparisons run from 2000 quarter 1 through 2026 quarter 3 and drawn from FRED (for the federal funds rate) and from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters (to compute the rule's prescriptions).

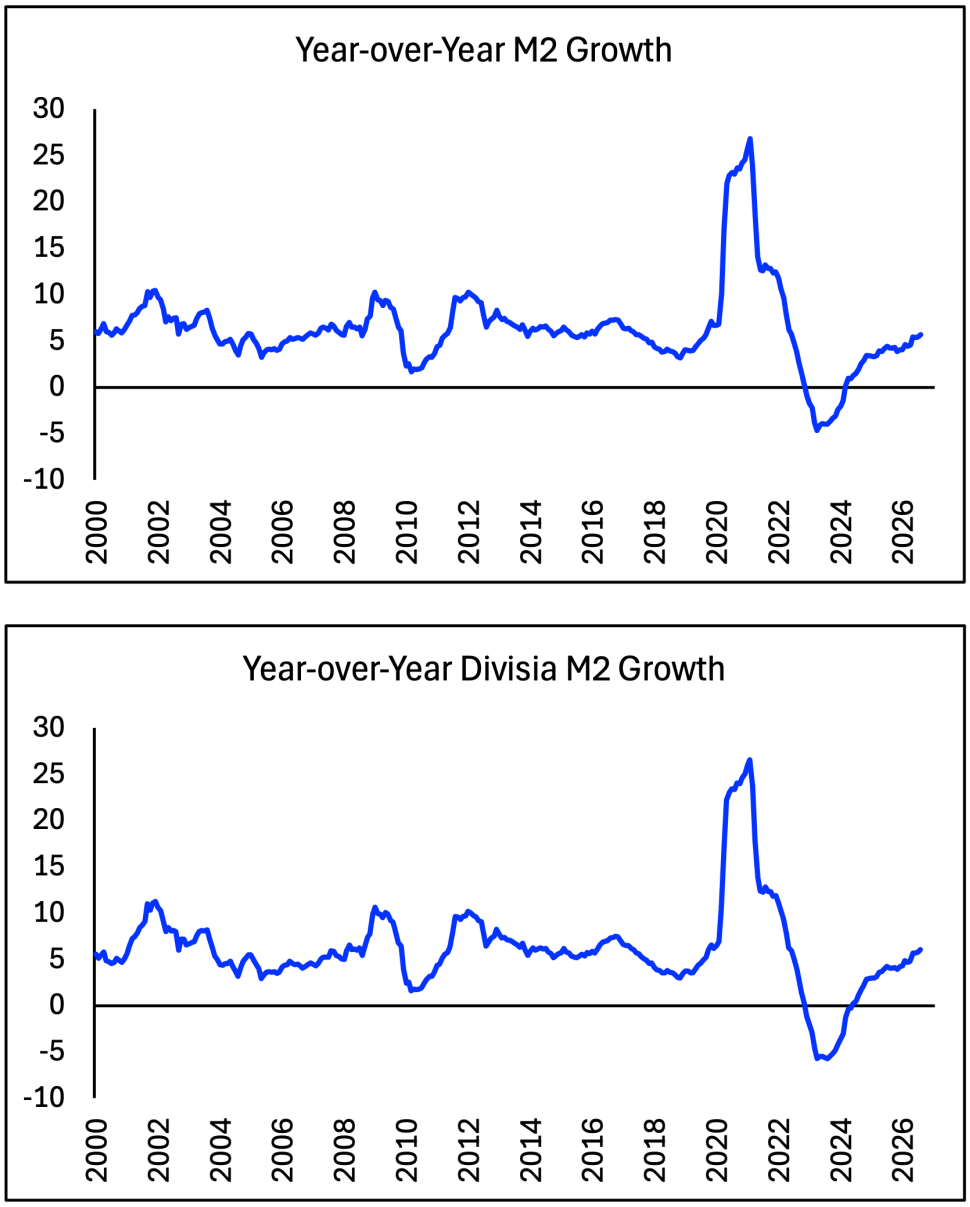



Figure 4. Measures of Broad Money Growth. The top panel plots year-over-year percentage changes in the Federal Reserve's official measure of M2, obtained from FRED. The bottom panel plots year-over-year percentage changes in the Center for Financial Stability's Divisia M2 monetary aggregate. Monthly data on both series run from January 2000 through August 2026.