The Fed Should Talk About the Prescriptions of Systematic Policy Rules

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Abstract: After a lengthy delay as inflation surged, the Federal Reserve has tightened policy assertively and forcefully reaffirmed its commitment to price stability. But public views about the Fed's likely policy path over the medium term have fluctuated frequently in recent months, requiring repeated pushback from Fed officials. These misunderstandings about the Fed's medium-term policy path reflect a significant gap in FOMC communication and could have been avoided. The Fed should routinely make reference to the implications of systematic monetary policy rules when publicly discussing the likely future path of interest rates. Without tying policy mechanically to any particular formula, they could point out that the prescriptions from such rules capture the historical evidence on how monetary policy has been conducted when it has successfully reduced inflation.

Introduction

The Federal Reserve is facing the most challenging inflationary surge in a generation. Inflation began to rise in the second half of 2020 and has not slowed down. The price index for personal consumption expenditures rose 6.0 percent for 2021 and 6.0 percent for the 12 months ending in October 2022.[2] This is the highest rate seen since the end of the Great Inflation in early 1980s. After more than a year of asserting that the elevated inflation would be short-lived, the Federal Reserve began tightening in March 2022 and the stance of monetary policy has shifted dramatically since. The Federal Open Market Committee (FOMC) has raised the federal funds rate by 375 basis points to a target range of 3.75 to 4.00 percent and has begun shrinking the balance sheet.[3] The monetary policy outlook has shifted notably as well. The median federal funds rate deemed appropriate by FOMC participants for the fourth quarter of 2023 was 4.6 percent in September 2022; up from 1.0 percent in September 2021. Many FOMC participants have publicly stated their resolve to reduce inflation, even at the cost of weaker economic

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[2] The corresponding values for the Consumer Price Index are 7.1 percent for 2021 and 7.8 percent for the 12 months ending in October 2022

[3] The balance sheet reached $8.9 trillion in March 2022 and has shrunk by about $200 billion to about $8.7 trillion as of October 2022.

activity and job markets. Several have emphasized that stopping short of bringing inflation back down to target in the interest of ameliorating the short term costs would be more costly in the long run.

Bringing inflation back to the Fed's 2 percent target will require reducing spending growth and cooling off the labor market. That process has only just begun. Signs of slowing are apparent in housing markets and, to a lesser extent, in consumer spending. Nevertheless, much of the fight against inflation remains ahead. Despite the decline in job openings in recent months, the labor market is still generally quite tight, with unemployment rates and initial claims still low. Wage rates are still advancing at inflationary rates. Consumer and business expectations for inflation over the next year or so remain elevated and inflation is showing a breadth and persistence that it lacked when the surge began.

While near-term inflation expectations are relatively high, increases in measures of expected inflation at longer horizons have been more modest—a relatively bright spot in the economic outlook. The stability of longer-term inflation expectations suggests that consumers and firms believe that the FOMC will likely bring inflation back down to near its 2 percent target within a few years. It is unclear, however, how well the public understands what might be required to achieve that goal. Financial market projections for the path of the federal funds rate have risen significantly over the course of the year as inflation readings have persistently exceeded expectations and the FOMC has raised its projections. And yet, this past summer saw market participants for a time price in a Fed "pivot" to easing for next year, anticipating that weakness in real activity in 2023 would in turn induce an early policy reversal, a misperception that FOMC participants sought to dispel in public communications, including Chairman Powell's succinct and forceful statement of resolve at Jackson Hole.[4]

Speculation about a "pivot" to a less restrictive policy outlook reemerged after public statements by FOMC participants prior to the November 2, 2022 FOMC meeting seemed to suggest reducing in the rate of increase in the federal funds rate target from 75 basis points per meeting to 50 basis points. The statement issued following that meeting included new forward guidance language that was taken as signaling *both* a reduced pace of tightening and a generally less restrictive medium-term policy path than had been anticipated.[5] Bond and equity prices rose quickly on the statement's release, consistent with market participants viewing the policy outlook as more accommodative. Chairman Powell pushed back forcefully at the press conference after the meeting, taking pains to separate the pace of rate increases from the question of how high they would ultimately raise the policy rate, stating that the latter was higher than had been thought at the September meeting. He emphasized that "we have some ground left to cover here and cover it we will."[6] Financial markets reversed course.

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[4] Powell (2022).

[5] "In determining the pace of future increases in the target range, the Committee will take into account the cumulative tightening of monetary policy, the lags with which monetary policy affects economic activity and inflation, and economic and financial developments." FOMC Statement, November 2, 2022.

[6] "We think there's some ground to cover but before we meet that test [referring to "significantly restrictive"] and that's why we say that ongoing rate increases will be appropriate, and as I mentioned, incoming data between the

The gyrations over the past few months in public perceptions of the Fed's likely policy course were the result of significant gaps in the FOMC's communications and could have been avoided. While the Committee foreshadows the future level of interest rates participants view as likely to be appropriate in their quarterly release of the *Summary of Economic Projections* (SEP), they have provided only vague guidance on the *determinants* of the ultimate level interest rates will reach. The November FOMC statement stated that they intend "to attain a stance of monetary policy that is *sufficiently restrictive* to return inflation to 2 percent over time." (Emphasis added.) By itself, this provides no analytical guidance at all and places tremendous weight on the indeterminant qualitative phrase "sufficiently restrictive."

Fed officials generally define "restrictive" as an interest rate setting above "the neutral rate," but some have struggled to coherently convey the meaning of "neutral." The neutral federal funds rate at times has been identified with the median longer-run projection of 2.5 percent for the funds rate in the FOMC's Summary of Economic Projections. For example, after the July 2022 FOMC meeting Chairman Powell stated that the Committee believed that the funds rate target (then 2.25 to 2.5 percent) was "at" neutral in this sense.[7] But the interest rate that moderates the incentive of businesses and consumers to delay or advance spending is clearly the ex ante real interest rate—that is, the nominal rate minus the expected inflation rate.[8] The neutral or "natural" rate that divides expansive from restrictive policy is thus a real, inflation-adjusted interest rate.[9] A 2.5 percent longer-run federal funds rate, with longer-run inflation projection of 2.0 percent, thus delivers a neutral real funds rate of one half. When inflation is running over 5 percent, 2.5 percent is decidedly not a "neutral" rate setting but is instead quite expansionary. Federal Reserve Bank of New York President John Williams corrected the record in an interview with the *Wall Street Journal* one month later.[10]

In the months ahead, the media and financial markets will focus increasing attention on the phrase "sufficiently restrictive." Fed officials will be regularly asked about what level of the federal funds rate they view as sufficiently restrictive. To what principles will they look for their assessments of when to pause rate hikes? How will they explain their assessments? How will they respond to complaints they are "overdoing it," or that they are risking inflation becoming

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meetings, both a strong labor market report but particularly the CPI report, do suggest to me that we may ultimately move to higher levels than we thought at the time of the September meeting." (Board of Governors of the Federal Reserve System, Transcript of Chairman Powell's Press Conference, November 2, 2022: 5-6)

[7] "So I guess I'd start by saying we've been saying we would move expeditiously to get to the range of neutral. And I think we've done that now. We're at—we're at 2.25 to 2.5 [percent], and that's right in the range of what we think is neutral." Chairman Powell, Transcript of Chairman Powell's Press Conference, July 27, 2022: 5.

[8] Note that near-term inflation expectations—over one year or so—are the ones most relevant to decisions to delay or advance current spending, independent of inflation expectations at longer horizons.

[9] The natural rate concept is attributed to the early 20th century economist Knut Wicksell. See Woodford (2003) and Humphrey (1986), though the latter notes the much earlier contribution of Henry Thornton and Thomas Joplin.

[10] "And I think that, to me, that's one of the benchmarks. That we need to get the interest rate relative to where inflation is expected to be over the next year, into a positive space and probably even, you know, higher than the longer-run neutral level – which I think is around a ½ percent on real interest rates." *Wall Street Journal* (2022).

"entrenched"? How will they convince the public that they have indeed raised rates to a level sufficient to bring inflation down to their 2 percent target?

Fortunately, there is a well-established framework in monetary economics that provides much needed guidance. Systematic monetary policy rules, such as those proposed by John Taylor relating the Fed's interest rate settings to measures of inflation and real activity, can capture the patterns of policy response that have been successful at reducing inflation in the past. They are grounded in historical experience and performance across a range of compelling economic models and thus their prescriptions provide sound guidance for monetary policy. In 2014, one of us publicly called for the Federal Reserve to take a step toward a more systematic policy framework by regular public reporting and discussion of the likely behavior of interest rate policy based on a few Taylor-style rules.[11] The Federal Reserve began reporting on such rules in its semi-annual *Monetary Policy Report* (MPR) to Congress in July 2017. The Federal Reserve, however, rarely references the prescriptions emanating from these rules in its regular communications to the public about policy.

The FOMC should routinely make reference to the implications of such a range of monetary policy rules when publicly discussing the likely future path of interest rates. This would not require taking the step of committing to any one particular rule. Policymakers could simply note that successful pursuit of the Fed's mandate is likely to require policy settings that are broadly aligned with the magnitude of various rule prescriptions. Talking about policy rule prescriptions in this way would guide public expectations about how high interest rates might need to rise to restore price stability and how that path is likely to depend on incoming data. Policy rule prescriptions provide an empirically-grounded basis for estimating what level of interest rates will be "sufficiently restrictive." Referencing policy rules would provide a benchmark to dampen the perception that Fed policy decisions are arbitrary or motivated by distributional considerations or political pressures. Greater use of policy rules in communications thus could bolster the credibility of the Federal Reserve's resolve and thereby reduce the costs of disinflation.

Systematic Monetary Policy Rules

Since John Taylor's seminal paper proposing simple rules as a method of encapsulating the conduct of monetary policy over time, a large research literature has studied the properties of various versions of such rules.[12] In particular, research has examined how policy has behaved in the past and looked for versions of policy rules that delivered successful outcomes in practice and that deliver successful outcomes across a range of empirically-grounded models of inflation and real activity.

While there are a variety of desirable policy rules, they share a few basic properties. One is that the policy rate rises more than one-for-one with inflation, a feature known as the "Taylor

[11] Plosser (2014).

[12] Taylor (1993). See Taylor and Williams (2010) for a review of subsequent research.

Principle."[13] The intuition for this result rests on two ideas. One is that expected inflation often closely tracks lagged inflation, so that increases in realized inflation typically signal commensurately higher expected inflation. The other is that the interest rate net of expected inflation (the ex ante *real* interest rate) summarizes the stance of monetary policy, since it represents the incentive to substitute away from current spending by delaying outlays. When inflation rises, spending restraint is called for and thus real interest rates should rise. Thus, the policy rate—which is a nominal interest rate—should increase by more than the increase in expected inflation—otherwise real interest rates fall and consumers and firms have an enhanced incentive to spend more in order to avoid imminent price hikes. This is what happened in 2021; real interest rates fell significantly as the Fed held the funds rate near zero while inflation and expected inflation rose.

Another property of successful rules that has been found to be important for success is that the policy rate should respond to a measure of real resource utilization, rising when activity is relatively strong (for example, when unemployment is low) and falling when activity is relatively weak (for example, when unemployment high), all else constant.[14] This property reflects the fact that strong real activity is associated with heightened pressure on aggregate supply, in which case it is desirable to raise real interest rates in order to encourage consumers and firms to postpone spending, and vice versa when real activity is weak.

A wide range of research has shown the value of simple monetary policy rules that embody these principles.[15] These rules perform well in a wide variety of models and are often more robust than a rule that is fully optimal in a specific model. Such rules capture fairly well the behavior of central banks during periods of good economic outcomes, such as during the Great Moderation. During periods of poor performance, such as the Great Inflation of the 1960s and 1970s, central bank behavior deviates from the principles underlying good rules. For these reasons, many economists, including many members of the Shadow Open Market Committee, have urged the Federal Reserve to make greater use of such monetary policy rules in the formulation and communication of monetary policy.[16] In fact, the Federal Reserve's semi-annual *Monetary Report to Congress* routinely includes a section discussing the prescriptions of several specific policy rules in the current environment.[17] Prescriptions of these monetary policy rules are routinely compiled and have been shared with Committee participants before each FOMC meeting since 2004. And Chairman Powell has noted that the Committee takes account of such prescriptions in its deliberations, a practice that we can attest goes back several years.

However, the Fed by its own account diverged significantly from policy rule prescriptions in late 2021. In the Fed's June 2022 *Monetary Policy Report* (pp. 46-48) all versions of the Taylor rule

[13] Taylor (1999), Woodford (2001).
[14]Goodfriend and King (1997).
[15]Taylor and Williams (2010).
[16] See, for example, Plosser (2014), Levin (2014), Taylor (2017), Ireland (2020), or Hetzel (2019).
[17] The most recent MPR was submitted on June 17, 2022. Board of Governors of the Federal Reserve System (2022). The section on monetary policy rules was inexplicably omitted from the February 25, 2022 *Monetary Policy Report*.

are shown prescribing liftoff for the funds rate target in second or third quarter of 2021 and a federal funds rate ranging between 4 percent and 7 percent for the first quarter of 2022. The reason reflected not just the increases in inflation but the rapid fall in the unemployment rate from the peak of 14.7 percent in April 2020 to 6.0 percent by April 2021. Thus the FOMC has found itself far behind the curve in confronting inflation, necessitating the rapid response witnessed since March.

The FOMC has rapidly raised the policy rate as it recognized that it was far behind the curve. As a result the gap is shrinking between the prescriptions of systematic policy rules and the actual stance of policy. We can see this in Table 1, which displays prescriptions for the federal funds rate over the next two years from three widely-investigated policy rules: Taylor's 1993 and 1999 rules, and Taylor's 1999 rule using core inflation instead of headline.[18] The reported calculations use the median projections for inflation and unemployment from the FOMC's September 2022 *Summary of Economic Projections.* The median SEP projection for the average federal funds rate for the fourth quarter of 2022 is well below the range of these policy rule prescriptions, an indication that the Fed is still catching up to where policy ought to be.

As Chairman Powell has emphasized, the path of the federal funds rate over the medium term is more important than whether the FOMC raises rates by 50 or 75 basis points at the December meeting.[19] Looking ahead to the fourth quarter of 2023, the median federal funds rate projections from the September 2022 FOMC meeting were higher than the prescriptions of policy rules shown in Table 1. Recall that the funds rate projections are based on median participant projections for inflation and unemployment. FOMC participants projected a relatively rapid decline for inflation next year. Specifically, the median projection for the four-quarter percent change in the price index for personal consumption expenditures falls to 2.8 percent as of the fourth quarter of 2023, from 6.28 percent for the third quarter of this year, the most recent data. For the core version of that index, the four-quarter percent change is projected to fall to 3.1 percent, versus 4.9 percent for Q3. As a result the policy rules also would be expected to decline from their peak and all three versions of the Taylor rule do so.

Alternative assumptions about the course of inflation and unemployment lead to different policy rule prescriptions. If we instead assume, for example, that inflation persists through the end of next year at the four-quarter rate registered for last quarter—holding the projected unemployment rate path the same—we get a higher recommended policy path, as shown in

[18] The Federal Reserve Bank of Cleveland posts prescriptions from seven different Taylor Rules for three different published economic forecasts: https://www.clevelandfed.org/indicators-and-data/simple-monetary-policy-rules#background. The Federal Reserve Bank of Atlanta website has a Taylor Rule utility in which users can display prescriptions for up to three alternative rules using alternative rule parameters and alternative measures of inflation and real activity: https://www.atlantafed.org/cqer/research/taylor-rule.

[19] "To be clear, let me say again, the question of when to moderate the pace of increases is now much less important than the question of how high to raise rates and how long to keep monetary policy restricted, which really will be our principal focus." Chairman Powell, Transcript of Chairman Powell's Press Conference, November 2, 2022: 6.

Table 2. Since inflation has proven to be surprisingly persistent this year, continually exceeding the FOMC's projections, this would appear to be a plausible scenario. In this persistent inflation scenario, the three policy rules recommend federal funds rate between 7 and 9 percent-- 4 to 6 percentage points *higher* by the fourth quarter of 2023 than in the more favorable inflation scenario envisioned at the September FOMC meeting. The September SEP median funds rate projection, at 4.6 percent, lies well below these three prescriptions. While the September SEP projected policy path is in line with systematic policy rules under the assumption that inflation subsides rapidly in the coming year, more persistent inflation could necessitate a significantly higher rate path. Similarly, a more rapid increase in the unemployment than projected in the SEP would tend to a lower policy rate. Again, systematic policy rules provide a transparent and well-grounded method of conveying the way in which the policy path responds to economic outcomes.

The shift in policy rule prescriptions in response to alternative assumed paths for inflation and unemployment illustrates how useful it would be to reference such rules in FOMC communications. As forecasts of future inflation and unemployment vary with incoming data, policymakers could point to such rule prescriptions as indicative of the way in which the outlook for the policy rate path might need to evolve. Indeed, data received since the September 2022 FOMC meeting have led to upward revisions for inflation forecasts. In the press conference following the November 2022 meeting, Chairman Powell said that he believed that the projected funds rate path would have been higher had one been compiled.[20] If market participants had been conditioned by past FOMC communications to connect, even loosely, the expected funds rate path to a range of policy rule prescriptions, the confusion and whipsaw movements in financial asset prices on the afternoon of November 2nd might have been avoided. The FOMC would not have had to place so much weight on the phrase "sufficiently restrictive." Policy rule prescriptions would provide a natural reference point for what the FOMC means by that phrase. They would also provide a quantitative sense of how policy is "data dependent."

One last point deserves emphasis. 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 strawman. In the current circumstances, such a claim serves to preserve discretion and evade discussion of the magnitude of policy tightening that is likely to be 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.

[20] "Our message should be, what I'm trying to do is make sure that our message is clear, which is that we think we have a ways to go, we have some ground to cover with interest rates before we get to, before we get to that level of interest rates that we think is sufficiently restrictive. And putting that in the statement and identifying that as a goal is an important step. And that's meant to put that question really as the important one now going forward. I've also said that we think that the level of rates that we estimated in September, the incoming data suggests that that's actually going to be higher and that's been the pattern." Chairman Powell, Transcript of Chairman Powell's Press Conference, November 2, 2022: 20.

The case for referencing monetary policy rule prescriptions in FOMC communications

The Federal Reserve should make significantly more extensive references to systematic monetary policy rules in communicating about monetary policy. Doing so would be particularly constructive in the current tightening cycle. In public speeches, testimony and press conferences, Fed speakers should point to rule prescriptions for the funds rate path under plausible near-term paths for macroeconomic variables. They could note that such prescriptions are derived from historical evidence on how the Fed responded in the past when it successfully reduced inflation. They could note that success in restoring price stability in the current episode is thus likely to require an FOMC response in line with the prescriptions of such rules. In this way, Fed speakers would be providing a transparent scientific grounding for how high and how rapidly the Fed might have to raise interest rates. Individual policymakers could cite particular rules they find compelling or desirable on methodological grounds, just as they do now with regard to particular price indices. But there is no need to select a personal favorite; they could simply cite the prescriptions from a representative collection of rules included in the *Monetary Policy Report* to Congress.[21]

Bolster credibility

Public reference to rule prescriptions in discussing the monetary policy outlook would yield a number of benefits. First and foremost, it would help bolster the credibility of the Fed's commitment to price stability. Fed officials have made a special point of conveying their resolve to ensure that inflation returns soon to their 2 percent target, even if that means some economic hardship. Perhaps the major risk to the economic outlook now is the possibility that the Fed comes to be seen as not maintaining that resolve in the event that the economy actually does slip into recession. Overall labor market conditions are still exceptionally tight, despite emerging pockets of weakness. But when labor market conditions weaken, as they must if the Fed is to slow spending enough to get inflation back under control, calls will emerge from many quarters for the Fed to suspend its fight against inflation for the sake of forestalling a contraction. Indeed, we are already seeing complaints that the Fed is running the risk of "overshooting" or "overdoing it." Since monetary policy operates, famously, with "long and variable lags," current data alone will not say whether policy has overshot or undershot.

The FOMC will likely decide to stop increasing or start reducing the funds rate before 12-month inflation actually has returned to target. Doing so will immediately raise the question of how the Committee decided to stop where it did. The choice runs the risk of appearing to be relatively arbitrary unless they can provide a compelling rationale. The rhetoric of "risk management," describing monetary policy as balancing perceived probabilities of various

[21] The MPR reports monetary policy rule prescriptions only up through the most recent quarter of reported economic statistics; the *MPR* submitted on June 17, 2022, for example, only displays predictions through the first quarter of 2022. The *MPR* also reports the most recent SEP, however, including FOMC participants' projections of the end-of-year values of variables that appear on the right-hand-side of policy rules. It would be a simple matter for the MPR to also display the results of applying rules to the median or central tendency projections in the SEP.

future developments, is vague and opaque, and leaves them open to second-guessing. The compelling guide to monetary policy is the historical evidence on what has led to successful disinflations in the past—exactly the information that is encoded in monetary policy rules. Anchoring communication about a policy pivot in systematic policy rules will reduce the risk of compromising the Fed's credibility.

On the other hand, resisting calls for premature easing will be essential to avoiding the stop-go policy pattern of the 1970s, in which recessions prompted policy easing before inflation had fully subsided. As the public came to understand this propensity, inflation became more entrenched and harder to suppress. Indeed, several FOMC members, including Chairman Powell, have noted repeatedly that while the current policy tightening does run a risk of inducing a recession, that risk is preferable to allowing inflation to persist, necessitating even more costly action down the road. Monetary policy rules also capture how the Fed avoided overresponding to weakening economic activity during regimes in which policy was relatively successful. Again, aligning policy with such regimes can help the Fed navigate a recession without sacrificing credibility.

Bolstering the Fed's credibility can in turn reduce the costs of restoring price stability. Reducing doubts about the Fed's commitment would reduce uncertainty about inflation at longer horizons and thus keep longer-run inflation expectations better anchored. Expectations of imminent disinflation would tend to dampen pricing pressures in the short run as well, helping the Fed's cause. Well-anchored inflation expectations would reduce the likelihood that the Fed needs to take costly measures to re-establish its credibility.

Clarity about the policy

The relatively small increase in measures of longer-run inflation suggest that at present, consumers and firms believe that the Fed is likely to follow through on its commitment to do what is required to bring inflation back down to target within a few years. And yet a lack of clarity is apparent regarding what it will take. As noted earlier, the expected interest rate path has fluctuated significantly, inducing significant swings in financial asset prices, as markets conjectured an early Fed easing next year in response to weakening economic activity. At present, the public seems to be operating without a clear understanding of the principles governing how high rates will need to go to accomplish the Fed's avowed objective. To better anchor their expectations, the Fed should direct their attention to the historical evidence on the characteristics of successful monetary policy practices and the implications for the likely magnitude of tightening required by the current inflationary surge. Explicitly referencing the prescriptions of systematic monetary policy rules can do that.

Transparent data dependence

Another benefit of framing monetary policy by reference to monetary policy rules is that it would convey the way in which the policy rate path is likely to vary with incoming economic data. Fed officials often describe their policy as "data-dependent," without providing much

information on just how the policy will vary with future data. As noted earlier, in the September 2022 SEP, participants' projections for the federal funds rate at the end of 2023 range from 3.9 to 4.9 percent, with a median of 4.6 percent. Participants' projections for inflation range from 2.0 to 3.0 percent, with a median of 2.3 percent, implying a fairly rapid decline. The FOMC needs to prepare the public for very plausible scenarios in which inflation fails to subside as rapidly as they project.[22] In that case, systematic monetary policy rules imply that, all else equal, the funds rate should be correspondingly higher than their current projections. Framing monetary policy in terms of historically successful rules would help participants draw a quantitative connection between scenarios in which inflation proves more persistent than they expect and higher policy rates, and would improve upon the vague "risk management" approach in which that connection is obscured.

On the other hand, policy rules would also help clarify the circumstances in which the Committee would cease raising rates. Speculation has already commenced about the FOMC's contemplation of a pause in rate increases in order to "take a look around" to see what effect rate increases were having. Pausing rate increases before inflation has fully returned to target makes sense, given the long and variable lags that have long been known to characterize how changes in the stance of monetary policy affect the economy. But how is the public to predict when such a pause might take place? And how would the Committee justify the point at which they choose to pause? Monetary policy rules provide the natural answers. They provide prescriptions for how high interest rates should be for any given inflation rate and real activity measure in order to successfully disinflate. While there may be a range of such prescriptions, depending on the particular version, their connection to historical periods of monetary policy success can provide a relevant anchor. Without such an anchor, the choice of when to pause could well be perceived as arbitrary, leaving the Fed vulnerable to accusations of favoritism or political influence.

Similarly, grounding policy setting in monetary policy rules would help anchor discussions about when incoming data might reveal enough weakening to warrant the Fed reversing course and easing policy. They would quantify how much weakness would justify a cut in interest rates without jeopardizing price stability. Indeed, policy rule prescriptions supported the need for monetary stimulus at the moment the pandemic hit in early 2020. Further down the road, monetary policy rule prescriptions would help the Fed avoid the chronic problem of delaying the exit from monetary ease.[23][24]

Constructive forward guidance

Referencing historically successful monetary policy rules would be a constructive method for the FOMC to provide forward guidance. The traditional method involving qualitative or

[22] The FOMC would do well to make more extensive use of scenario analysis, both in policy setting and in communications; see Bordo, Levin and Levy (2020) and Levin (2014).
[23] Bordo and Levy (2022).
[24] As noted earlier, the policy rules reported in the MPR recommended a lift off of the funds rate in Q2 or Q3 of 2021, well before the Fed acted at the very end of Q2 of 2022.

quantitative Committee statements about future interest rate settings or asset purchases has encountered a number of pitfalls. One stems from the ambiguity in such statements about whether the Committee was conveying information about its reaction function or its economic outlook. The Committee often intended the former, seeking to encourage belief that they would hold rates "lower for longer" than market participants had believed, only to find that the forward guidance announcement led market participants to believe that the FOMC was more pessimistic about the outlook that they had thought. Emphasizing the implications of systematic policy rules that the Committee is likely to need to emulate would convey information about the Fed's reaction function without implicating the Committee's economic outlook.

Another pitfall in traditional forward guidance practice is the tension it creates with the notion that policy will be "data dependent." Emphasizing systematic rule-like behavior is a natural way for the Fed to stress its reaction function or data dependence. Framing decision making in this manner is far more appropriate and likely to be effective than the Fed's halting and confusing steps to offer forward guidance as if it were some kind of independent tool. Referencing systematic policy rules would help integrate communication about forward guidance with the usual meeting-to-meeting policy setting process.

Framing forward guidance in terms of systematic policy rules would also alleviate the problems that arises when being seen as complying with past forward guidance conflicts with the policy response indicated by incoming data.[25] This tension was evident in late 2021, when forward guidance about the sequencing of asset purchase tapering and rate increases delayed the liftoff that incoming data indicated was urgently needed. Monetary policy rules build in responsiveness to incoming economic data in a way that is more continuous than the process of invoking an "escape clause." Explaining policy as systematic pattern of response or reaction function is likely to be as close to a credible commitment as the Fed can achieve while describing the future outlook for policy. It would be more easily understood by the public as well.

Improved clarity and precision of communications

Referencing monetary policy rules would also allow the Fed to avoid confusion about elusive abstract concepts such as "the neutral rate" when discussing the likely future path of interest rates. The media and financial markets, and at times Fed officials, have identified "the neutral federal funds rate" with the longer-run projection for the federal funds rate in the FOMC's SEP. In this context, a neutral interest rate corresponds to the concept, attributed to Knut Wicksell, of a "natural" interest rate that prevails in a hypothetical equilibrium without inflation or deflation, the idea being that rates above that restrain the economy while rates below that

[25] The FOMC generally expresses forward guidance as predictions of what a future Committee will want to do, rather than as commitments to do what the Committee might not otherwise want to do when the time comes. Nevertheless, forward guidance is often perceived, outside the Committee and within, as commitments in the latter sense. See Lacker (2019) and Plosser (2013).

provide stimulus.[26] In the September 2022 SEP, participants' longer-run federal funds projections ranged from 2.3 percent to 3.0 percent, with a median of 2.5 percent. In the same SEP, every single participant projected inflation to be at the 2.0 percent in the longer run, but inflation now is running above 5 percent and inflation expectations are above 2 percent. FOMC participants thus project the real federal funds rate to be between 0.3 and 1.0 percent in the longer run, with a median of 0.5 percent. The natural interest rate varies continually over time with economic conditions, a point emphasized by Marvin Goodfriend and Robert King (1997), as well as Michael Woodford (2003). And it certainly varies with the expected rate of inflation; as noted above, it is the ex ante real interest rate that moderates the incentive of consumers and firms to delay current spending. The 2.5 percent median SEP projection for the nominal federal funds rate in the longer-run, when inflation has settled at 2 percent, is irrelevant as a benchmark for gauging the current stance of monetary policy with inflation running above 5 percent.

Some Federal Reserve officials have referred to the FOMC's longer-run projections for the nominal federal funds rate as the "neutral" rate and have talked about rates above that as "restrictive." For example, after the July 2022 FOMC meeting Chairman Powell stated that the Committee believed the funds rate target—then 2.25 to 2.50 percent—was "at" neutral in the sense that it matched up with the longer-run federal funds rate projections in the SEP.[27] With inflation running at 5 percent or more, a federal funds rate of 2.5 percent implies a real, inflation-adjusted rate of negative 2.5 percent or below—quite stimulative by historical standards. In an interview a month later Federal Reserve Bank of New York President John Williams provided a very different analysis, describing the neutral rate as a longer-run *real* federal funds rate of about one half and stating that the nominal interest rate minus what inflation is expected to be over the next year needed to rise above that.[28] Williams' approach represents an application of the Taylor Principle, and it would be just a small further step to appeal to the historical record embodied in monetary policy rules as the appropriate benchmark for assessing the stance of monetary policy.

Conclusion

The Fed is facing many challenges. Some, if not most, are self-inflicted. The changes it made to its strategic framework in August 2020 contributed to an inflationary bias in its approach to policy and significant confusion on the part of the public. It constituted a significant departure from the past. This left the Fed unprepared and somewhat confused when faced with the inflationary consequences of the pandemic and the aggressive stimulus provided by monetary

[26] See Woodford (2003) and Humphrey (1986). The latter notes the much earlier contributions of Henry Thornton and Thomas Joplin.

[27] "So I guess I'd start by saying we've been saying we would move expeditiously to get to the range of neutral. And I think we've done that now. We're at—we're at 2.25 to 2.5 [percent], and that's right in the range of what we think is neutral." Chairman Powell, Transcript of Chairman Powell's Press Conference, July 27, 2022: 5.

[28] "And I think that, to me, that's one of the benchmarks. That we need to get the interest rate relative to where inflation is expected to be over the next year, into a positive space and probably even, you know, higher than the longer-run neutral level – which I think is around a ½ percent on real interest rates." *Wall Street Journal* (2022)

and fiscal policies during and following the crisis.[29] Its policy response was at first denial, blaming the inflation on exogenous and transitory forces beyond its control. The result was surging inflation and public questioning of the Fed's commitment to price stability. Belatedly, it reversed course. It forcefully reaffirmed its commitment to price stability and began to tighten policy assertively. Better late than never. However, despite the messages and near-term actions, there is much ambiguity and uncertainty over the path of policy going forward.

The hard work of restoring price stability has just begun. Reducing inflation will require a sustained effort to restrain aggregate nominal demand. That will slow economic growth and soften the labor market. The more difficult challenges will arise as the slowdown becomes more apparent. The Fed will come under increasing pressure to back off its fight against inflation and turn its attention to promoting economic expansion and employment growth in particular. As the slowdown continues political pressure will undoubtedly grow for the Fed to reverse course. This is when the real test of the Fed's resolve will arise. Federal Reserve officials have expressed their determination to resist the urge to ease prematurely or too quickly, which would only prolong high inflation. Maintaining their stated resolve will be easier if the Fed describes what it believes will be necessary and what principles will guide its decisions in more objectively-grounded, quantitative terms. Such efforts will provide the public with a greater understanding the Fed's underlying reaction function and thus how policy will evolve as the economy evolves. Such efforts will help minimize the extent to which speculation about the Fed's intentions drives financial market volatility.

In this brief we argue that there is a well-established framework that can provide much needed guidance, enhance transparency, and improve communication and accountability. Economists have learned that simple policy rules, such as those suggested by John Taylor describing how interest rates should be set in response to changes in inflation and real activity, provide good results in a wide range of models. Such rules are also grounded in historical experience; central bank behavior aligned with desirable simple rules has yielded good economic outcomes, while significant departures from the set of desirable rules has led to monetary instability and adverse economic outcomes. That is, the prescriptions of simple policy rules provide important and useful guidance for monetary policy in a wide range of economic conditions.

Communicating the path of monetary policy by referencing systematic policy rules that are grounded in historical experience can be a valuable means of communication for the Fed. In the current environment, referencing the prescriptions of such rules can provide valuable information to the public about how high rates might need to go and the conditions that might give rise to a pivot in policy or a reduction in rates. 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. Moreover, referencing systematic policy rules can bolster the Fed's credibility—so crucially important now—by making policy more transparent and understandable. Doing so can only help reduce the costs of restoring price stability.

[29] See Levy and Plosser (2022) for an early critique of the Fed's new regime.

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Table 1. Policy Rule Prescriptions Using September 2022 SEP Economic Projections (Percent)

Federal Funds Rate	2022 Q3	2022 Q4	2023 Q4	2024 Q4	2025 Q4
Taylor (1993)	9.25	7.75	3.39	2.64	2.27
Taylor (1999)	8.89	7.46	3.24	2.34	2.09
Taylor (1999) with core inflation	7.52	6.56	3.54	2.34	2.19
Median FOMC Projections		4.40	4.60	3.90	2.90
Actual federal funds rate (average)	2.18				
	Actuals	*Median FOMC SEP Projections*			
PCE price index*	6.28	5.40	2.80	2.30	2.00
Core PCE price index*	4.90	4.50	3.10	2.30	2.10
Unemployment rate	3.57	3.80	4.40	4.40	4.30

*Year-over-year percent change
Source: FRB Atlanta Taylor Rule Utility, https://www.atlantafed.org/cqer/research/taylor-rule.aspx

Table 2. Policy Rule Prescriptions Assuming More Persistent Inflation (Percent)

Federal Funds Rate	2022 Q3	2022 Q4	2023 Q4	2024 Q4	2025 Q4
Taylor (1993)	9.25	9.07	8.61	2.64	2.27
Taylor (1999)	8.89	8.54	7.61	2.34	2.09
Taylor (1999) with core inflation	7.52	7.16	6.24	2.34	2.19
Median FOMC Projections		4.40	4.60	3.90	2.90
Actual federal funds rate (average)	2.18				
	Actuals		*Alternative Projections*		
PCE price index*	6.28	**6.28**	**6.28**	2.30	2.00
Core PCE price index*	4.90	**4.90**	**4.90**	2.30	2.10
Unemployment rate	3.57	3.80	4.40	4.40	4.30

*Year-over-year percent change
Source: FRB Atlanta Taylor Rule Utility, https://www.atlantafed.org/cqer/research/taylor-rule.aspx